SUZUKI

DR-Z400/E

SERVICE MANUAL

99500-43022-01E

FOREWORD

This manual contains an introductory description on the SUZUKI DR-Z400/DR-Z400E and procedures for its inspection, service, and overhaul of its main components.
Other information considered as generally known is not included.
Read the GENERAL INFORMATION section to familiarize yourself with the motorcycle and its maintenance. Use this section as well as other sections as a guide for proper inspection and service.
This manual will help you know the motorcycle better so that you can assure your customers of fast and reliable service.

- * *This manual has been prepared on the basis of the latest specifications at the time of publication. If modifications have been made since then, differences may exist between the content of this manual and the actual motorcycle.*
- * *Illustrations in this manual are used to show the basic principles of operation and work procedures. They may not represent the actual motorcycle exactly in detail.*
- * *This manual is written for persons who have enough knowledge, skills and tools, including special tools, for servicing SUZUKI motorcycles. If you do not have the proper knowledge and tools, ask your authorized SUZUKI motorcycle dealer to help you.*

⚠ WARNING

Inexperienced mechanics or mechanics without the proper tools and equipment may not be able to properly perform the services described in this manual. Improper repair may result in injury to the mechanic and may render the motorcycle unsafe for the rider.

SUZUKI MOTOR CORPORATION

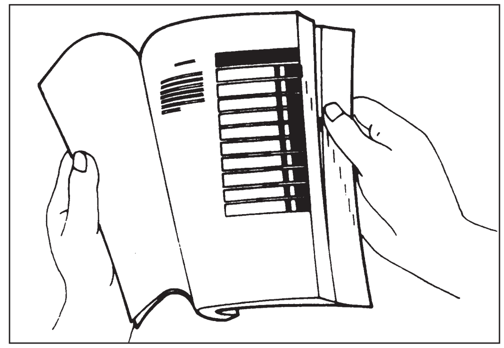
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HOW TO USE THIS MANUAL

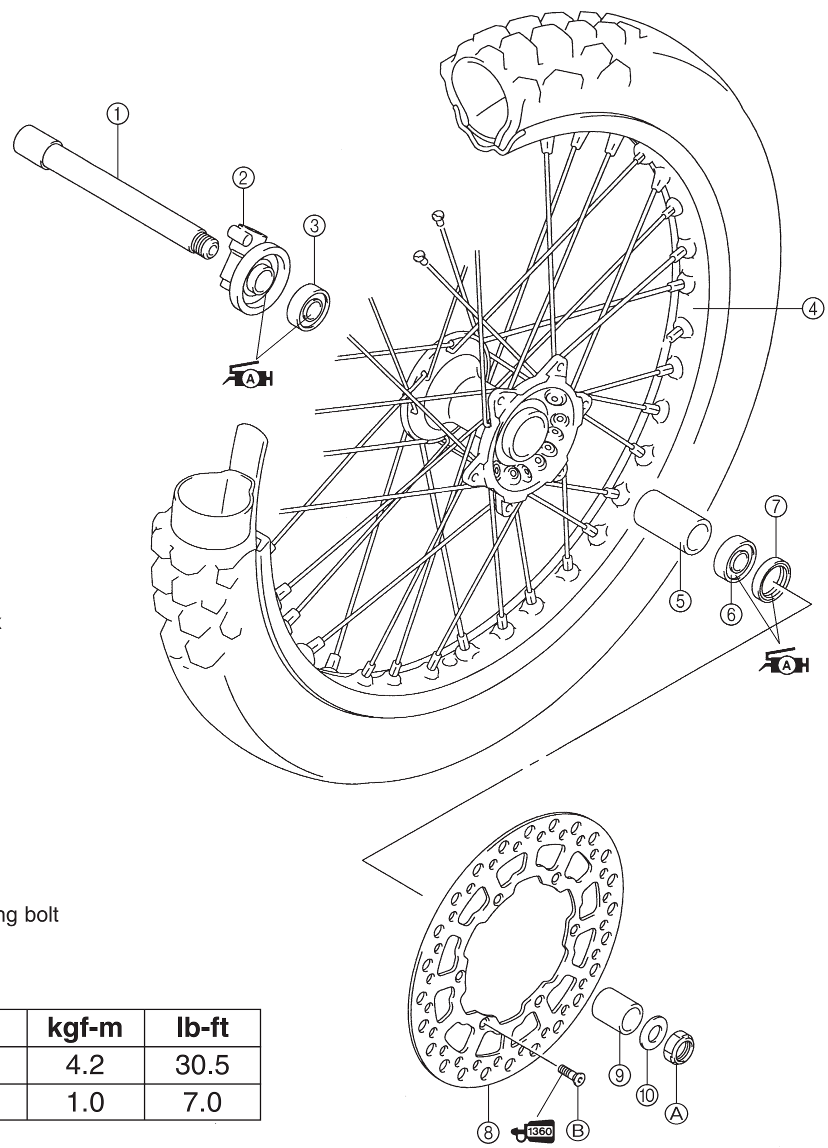
TO LOCATE WHAT YOU ARE LOOKING FOR:

1. The text of this manual is divided into sections.
2. The section titles are listed in the GROUP INDEX.
3. Holding the manual as shown at the right will allow you to find the first page of the section easily.
4. The contents are listed on the first page of each section to help you find the item and page you need.



COMPONENT PARTS AND WORK TO BE DONE

Under the name of each system or unit there is an exploded view which provides work instructions and other service information (e.g., tightening torque, lubricating points, and locking agent points).
Example: Front wheel



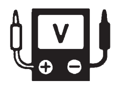
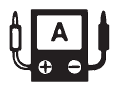
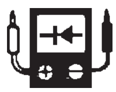
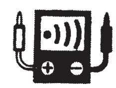
① Front axle
② Odometer gearbox
③ Bearing (R)
④ Front wheel
⑤ Spacer
⑥ Bearing (L)
⑦ Dust seal
⑧ Brake disc
⑨ Spacer
⑩ Washer

Ⓐ Front axle nut
Ⓑ Brake disc mounting bolt

ITEM	N·m	kgf-m	lb-ft
Ⓐ	42	4.2	30.5
Ⓑ	10	1.0	7.0

SYMBOL

Listed in the table below are the symbols indicating instructions and other information necessary for servicing. The meaning of each symbol is also included in the table.

SYMBOL	DEFINITION	SYMBOL	DEFINITION
	Torque control required. Data beside it indicates specified torque.		Apply THREAD LOCK "1342". 99000-32050
	Indicates service data.		Apply or use brake fluid.
	Apply oil. Use engine oil unless otherwise specified.		Measure in voltage range.
	Apply molybdenum oil solution. (mixture of engine oil and SUZUKI MOLY PASTE in a ratio of 1 : 1)		Measure in resistance range.
	Apply SUZUKI SUPER GREASE "A". 99000-25030 (For USA) 99000-25010 (For the other countries)		Measure in current range.
	Apply SUZUKI SILICONE GREASE. 99000-25100		Measure in diode test range.
	Apply SUZUKI MOLY PASTE. 99000-25140		Measure in continuity test range.
	Apply SUZUKI BOND "1207B". 99104-31140 (For USA) 99000-31140 (For the other countries)		Use special tool.
	Apply SUZUKI BOND "1215". 99000-31110 (Except USA)		Use engine coolant. 99000-99032-11X (Except USA)
	Apply THREAD LOCK SUPER "1303". 99000-32030		Use fork oil. 99000-99001-SS5
	Apply THREAD LOCK SUPER "1322". 99000-32110 (Except USA)		Use rear shock absorber oil. 99000-99001-S25

GENERAL INFORMATION

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WARNING/CAUTION/NOTE

Please read this manual and follow its instructions carefully. To emphasize special information, the symbol and the words WARNING, CAUTION and NOTE have special meanings. Pay special attention to the messages highlighted by these signal words.

⚠ WARNING

Indicates a potential hazard that could result in death or injury.

⚠ CAUTION

Indicates a potential hazard that could result in motorcycle damage.

NOTE:
Indicates special information to make maintenance easier or instructions clearer.

Please note, however, that the warnings and cautions contained in this manual cannot possibly cover all potential hazards relating to the servicing, or lack of servicing, of the motorcycle. In addition to the WARNINGS and CAUTIONS stated, you must use good judgement and basic mechanical safety principles. If you are unsure about how to perform a particular service operation, ask a more experienced mechanic for advice.

GENERAL PRECAUTIONS

⚠ WARNING

- **Proper service and repair procedures are important for the safety of the service mechanic and the safety and reliability of the motorcycle.**
- **When two or more persons work together, pay attention to the safety of each other.**
- **When it is necessary to run the engine indoors, make sure that exhaust gas is forced outdoors.**
- **When working with toxic or flammable materials, make sure that the area you work in is well ventilated and that you follow all of the manufacturer's instructions.**
- **Never use gasoline as a cleaning solvent.**
- **To avoid getting burned, do not touch the engine, engine oil, radiator, and exhaust system until they have cooled.**
- **After servicing the fuel, oil, engine coolant, exhaust or brake systems, check all of the lines, and fittings related to the system for leaks.**

CAUTION

* If parts replacement is necessary, replace the parts with SUZUKI Genuine Parts or their equivalent.
* When removing parts that are to be reused, keep them arranged in an orderly manner so that they may be reinstalled in the proper order.
* Be sure to use special tools when instructed.
* Make sure that all parts used in reassembly are clean. Lubricate them when specified.
* Use the specified lubricants, bonds, or sealants.
* When removing the battery, disconnect the ⊖ battery lead wire first, then the ⊕ battery lead wire.
* When reconnecting the battery, connect the ⊕ battery lead wire first, then the ⊖ battery lead wire. Finally, cover the ⊕ battery terminal with the terminal cover.
* When performing service to electrical parts, disconnect the ⊖ battery lead wire, unless the service procedure requires the battery power.
* When tightening cylinder head and crankcase nuts and bolts, tighten the larger sizes first. Always tighten the nuts and bolts from the inside working out, diagonally and to the specified torque.
* Whenever you remove oil seals, gaskets, packing, O-rings, self-locking nuts, locking washers, cotter pins, circlips, and other specified parts, be sure to replace them with new ones. Also, before installing these new parts, be sure to remove any left over material from the mating surfaces.
* Never reuse a circlip. When installing a new circlip, take care not to expand the end gap larger than required to slip the circlip over the shaft. After installing a circlip, always ensure it is completely seated in its groove and securely fitted.
* Use a torque wrench to tighten fasteners to the specified torque. Wipe off grease and oil if a thread is smeared with them.
* After reassembling, check parts for tightness and proper operation.

* To protect the environment, do not unlawfully dispose of used motor oil, engine coolant, all other fluids, batteries, and tires.
* To protect the earth's natural resources, properly dispose of used motorcycles and parts.

SUZUKI DR-Z400Y/DR-Z400EY (2000-MODEL)



RIGHT SIDE

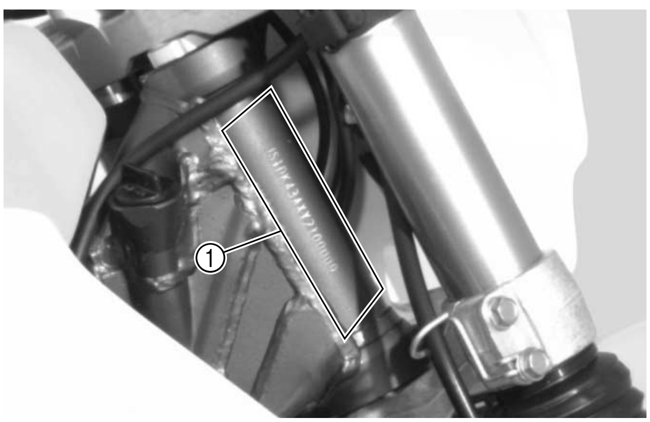


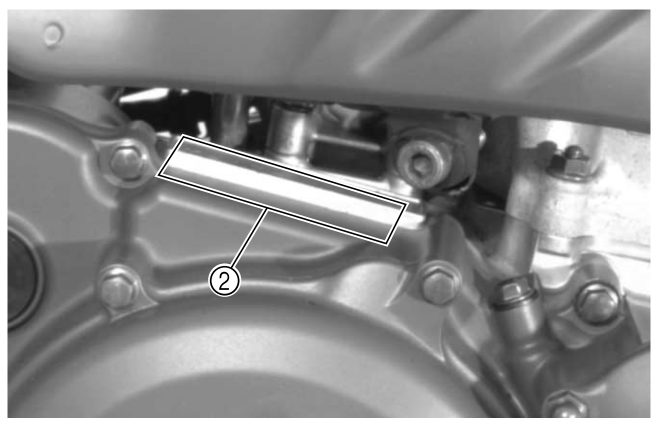
LEFT SIDE

* Difference between photographs and the actual motorcycle depends on the markets.

SERIAL NUMBER LOCATION

The frame serial number or V.I.N. (Vehicle Identification Number) ① is stamped on the right side of the steering head pipe. The engine serial number ② is located on the right side of the crankcase. These numbers are required especially for registering the machine and ordering spare parts.





FUEL, OIL, AND ENGINE COOLANT RECOMMENDATIONS

FUEL (FOR USA AND CANADA)

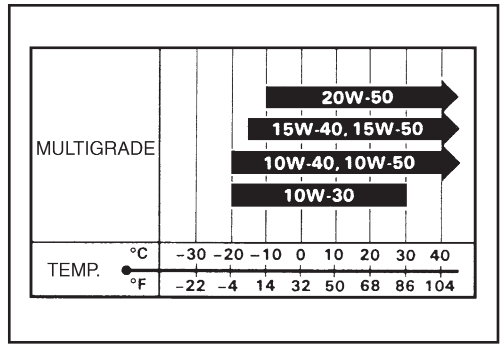
Use only unleaded gasoline of at least 90 pump octane ($\frac{R+M}{2}$). Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.

FUEL (FOR THE OTHER COUNTRIES)

Gasoline used should be graded 95 octane (Research Method) or higher. Unleaded gasoline is recommended.

ENGINE OIL (FOR USA)

SUZUKI recommends the use of SUZUKI PERFORMANCE 4 MOTOR OIL or an oil which is rated SF or SG under the API (American Petroleum Institute) service classification. The recommended viscosity is SAE 10W/40. If an SAE 10W/40 oil is not available, select an alternative according to the right chart.



ENGINE OIL (FOR THE OTHER COUNTRIES)

Use a premium quality 4-stroke motor oil to ensure longer service life of your motorcycle. Use only oils which are rated SF or SG under the API service classification. The recommended viscosity is SAE 10W-40. If an SAE 10W-40 motor oil is not available, select an alternative according to the following chart.

BRAKE FLUID

Specification and classification: DOT 4

⚠ WARNING

* **This motorcycle uses a glycol-based brake fluid. Do not use or mix other types of brake fluid such as silicone-based and petroleum-based fluids for refilling the system, otherwise serious damage will result to the brake system.**
* **Do not use any brake fluid taken from old, used, or unsealed containers.**
* **Do not reuse brake fluid left over from the last servicing or which has been stored for a long period of time.**

FRONT FORK OIL

Use SUZUKI FORK OIL SS-05 or an equivalent fork oil.

REAR SHOCK ABSORBER OIL

Use SUZUKI REAR SUSPENSION OIL SS-25 or an equivalent suspension oil.

ENGINE COOLANT

Since antifreeze also has corrosion- and rust-inhibiting properties, always use engine coolant containing antifreeze, even if the atmospheric temperature does not go below the freezing point.
Use an antifreeze designed for aluminum radiators. SUZUKI recommends the use of SUZUKI COOLANT antifreeze. If this is not available, use an equivalent antifreeze for aluminum radiators.
Mix only distilled water with the antifreeze. Other types of water can corrode and clog the aluminum radiator.

Mix distilled water and antifreeze at a ratio of 50:50 – 40:60.

For more information, refer to page 5-4 in the Cooling System section.

⚠ CAUTION

The percentage of antifreeze in the coolant should be between 50 to 60%. If the percentage of antifreeze is above or below this range the coolant's frost protection and rust-inhibiting capabilities will be reduced. Always keep the antifreeze content above 50% even if the atmospheric temperature does not go below the freezing point.

BREAK-IN PROCEDURES

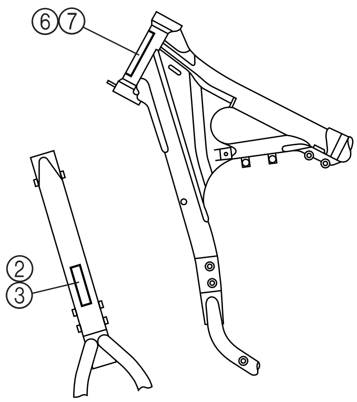
During manufacturing only the best possible materials are used and all machined parts are finished to a very high standard. It is still necessary to allow the moving parts to “BREAK-IN” before subjecting the engine to maximum stresses. The future performance and reliability of the engine depends on the care and restraint exercised during its early life. Refer to the following break-in engine speed recommendations.

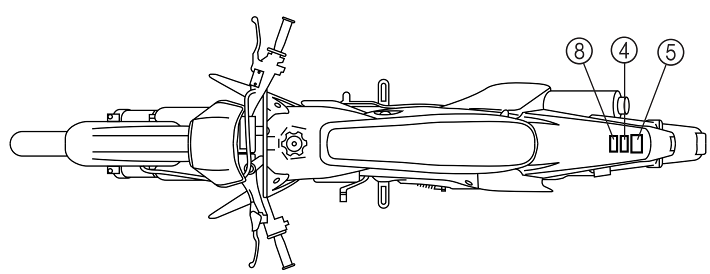
- Keep to these brake-in throttle position.

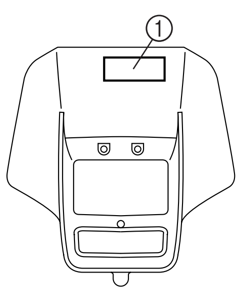
Break-in throttle position
Initial 10 hours: Less than 1/2 throttle
Up to 15 hours: Less than 3/4 throttle

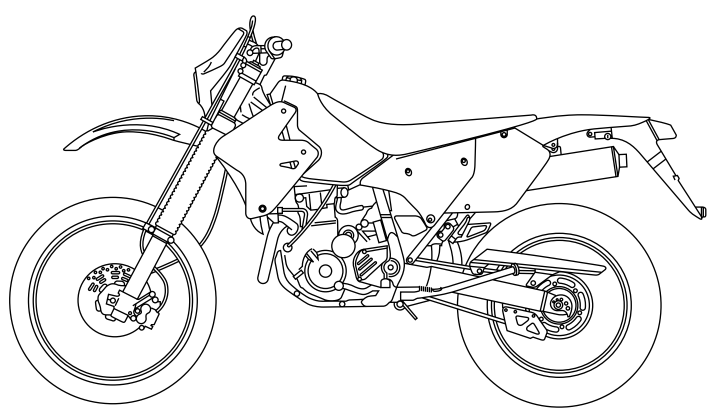
INFORMATION LABELS

NO	LABEL or PLATE NAME	APPLIED SPECIFICATION		
		E-01	E-03	E-28
①	Engine starting label (DR-Z400E)	○	○	○
②	Noise label	-	○	-
③	ICES Canada label	-	-	○
④	Manual notice label	-	○	-
⑤	Warning safety label	○	○	○
⑥	Frame serial number plate	○	○	○
⑦	Compliance label	-	-	○
⑧	Fuel information label	○	○	○









SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length .... 2 235 mm (88.0 in)
Overall width .... 825 mm (32.5 in)
Overall height .... 1 245 mm (49.0 in)
Wheelbase .... 1 475 mm (58.1 in)
Ground clearance .... 325 mm (12.8 in)
Seat height .... 945 mm (37.2 in)
Dry mass .... 113 kg (249 lbs) DR-Z400
119 kg (262 lbs) DR-Z400E

ENGINE

Type .... Four-stroke, liquid-cooled, DOHC
Number of cylinders 1
Bore .... 90.0 mm (3.543 in)
Stroke .... 62.6 mm (2.465 in)
Piston displacement .... 398 cm^3 (24.3 cu. in)
Compression ratio .... 12.2 : 1
Carburetor .... KEIHIN FCR39
Air cleaner .... Polyurethane foam element
Starter system .... Primary kick DR-Z400
Electric DR-Z400E
Lubrication system .... Dry sump

TRANSMISSION

Clutch .... Wet multi-plate type
Transmission .... 5-speed constant mesh
Gearshift pattern 1-down, 4-up
Primary reduction ratio 2.960 (74/25)
Final reduction ratio 3.357 (47/14)
Gear ratios, Low 2.285 (32/14)
2nd 1.733 (26/15)
3nd 1.375 (22/16)
4th 1.090 (24/22)
Top 0.863 (19/22)
Drive chain .... RK520KZO, 112 links

CHASSIS

Front suspension .... Telescopic, coil spring, oil damped, rebound damping force 18-way adjustable, compression damping force 14-way adjustable
Rear suspension .... Link type, coil spring, oil damped, spring preload fully adjustable, rebound damping force 21-way adjustable, compression damping force 26-way adjustable
Front suspension stroke .... 288 mm (11.3 in)
Rear wheel travel .... 295 mm (11.6 in)
Caster .... 27° 20´
Trail .... 112 mm (4.41 in)
Steering angle .... 45° (right & left)
Turning radius .... 2.2 m (7.2 ft)
Front brake .... Disc brake
Rear brake .... Disc brake
Front tire size 80/100-21 51M
Rear tire size 110/100-18 64M

ELECTRICAL

Ignition type .... Electronic ignition (CDI)
Ignition timing .... 7° BTDC at 1 800 r/min
Spark plug .... NGK: CR8E
DENSO: U24ESR-N
Generator .... Three-phase A.C. generator
Main fuse .... 10 A DR-Z400E
Headlight .... 12 V 55 W
Taillight .... LED

CAPACITIES

Fuel tank, including reserve .... 10.0 L (2.6 US gal, 2.2 Imp gal)
reserve .... 2.3 L (0.6 US gal, 0.5 Imp gal)
Engine oil, oil change .... 1 700 ml (1.8 US qt, 1.5 Imp qt)
oil and filter change .... 1 800 ml (1.9 US qt, 1.6 Imp qt)
engine overhaul .... 1 900 ml (2.0 US qt, 1.7 Imp qt)
Front fork oil .... 720 ml (24.3 US oz, 25.4 Imp oz)
Engine coolant .... 1 250 ml (1.3 US qt, 1.1 Imp qt)

NOTE:
These specifications are subject to change without notice.

COUNTRY AND AREA CODES

The following are codes and their applicable country or area.

CODE	COUNTRY OR AREA
E-01	General
E-03	USA
E-28	Canada

PERIODIC MAINTENANCE

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PERIODIC MAINTENANCE SCHEDULE

The chart below lists the recommended intervals for all the required periodic service work necessary to keep the motorcycle operating at peak performance and economy. Maintenance intervals are expressed in terms of hours.

NOTE:
More frequent servicing may be performed on motorcycles that are used under severe conditions.

PERIODIC MAINTENANCE CHART

Item / Interval	Initial 5 hours	Every 30 hours	Every 60 hours
Air cleaner	Inspect each time the motorcycle is ridden and clean as necessary.		
Exhaust pipe nut and bolt and muffler nut and bolts	T	T	T
Tappet clearance	I	–	I
Spark plug	–	I	R
Spark arrester	–	C	C
Fuel line	I	I	I
	Replace every four years.		
Decompression lever (DR-Z400)	I	I	I
Engine oil and oil filter	R	–	R
Engine oil hoses	I	I	I
Carburetor	I	I	I
Engine coolant	Replace every two years.		
Radiator hose	I	I	I
Clutch	I	I	I
Drive chain	Clean, lubricate and inspect each time the motorcycle is ridden.		
Brakes	I	I	I
Brakes fluid	I	I	I
	Replace every two years.		
Brake hoses	I	I	I
	Replace every four years.		
Tires	Check the tire pressure and the tire for damage each time the motorcycle is ridden.		
Spoke nipples	Inspect each time the motorcycle is ridden.		
Steering	I	–	I
Front fork	I	–	I
Rear suspension	I	–	I
Chassis nuts and bolts	T	T	T

I = Inspect and adjust, clean, lubricate, or replace as necessary.
R = Replace
T = Tighten
C = Clean

MAINTENANCE AND TUNE-UP PROCEDURES

This section describes the servicing procedures for each item mentioned in the Periodic Maintenance chart.

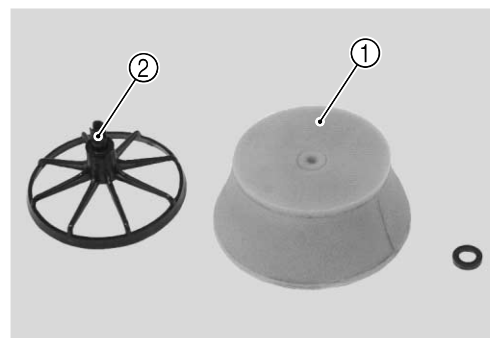
AIR CLEANER

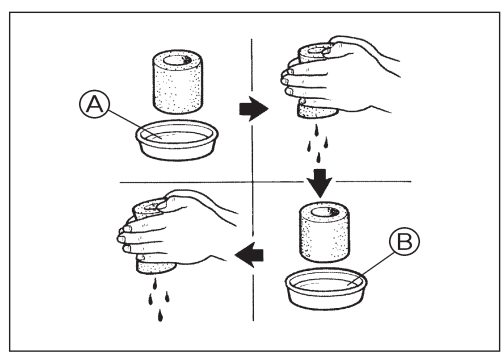


Inspect each time the motorcycle is ridden and clean as necessary.

If the air cleaner is clogged with dust, intake resistance will be increased, with a resultant decrease in power output and an increase in fuel consumption. Check and clean the air cleaner element in the following manner.

- Remove the left frame cover. (☞ 6-2)
- Remove the air cleaner element.
- Separate the polyurethane foam element ① and element frame ②.
- Fill a wash pan of a proper size with a nonflammable cleaning solvent. Immerse the air cleaner element in the cleaning solvent and wash it.
- Press the air cleaner element between the palms of both hands to remove the excess solvent: do not twist or wring the element or it will tear.
- Immerse the element in motor oil, and then squeeze out the excess oil leaving the element slightly wet.



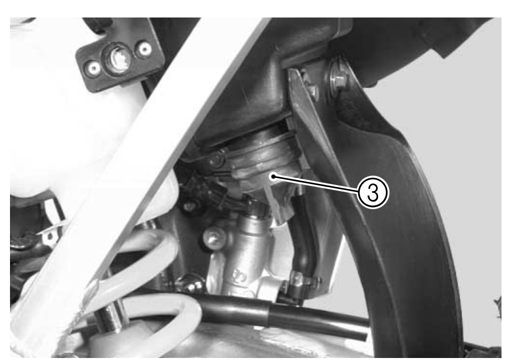


Ⓐ Nonflammable cleaning solvent
Ⓑ Motor oil SAE #30 or SAE 10W-40

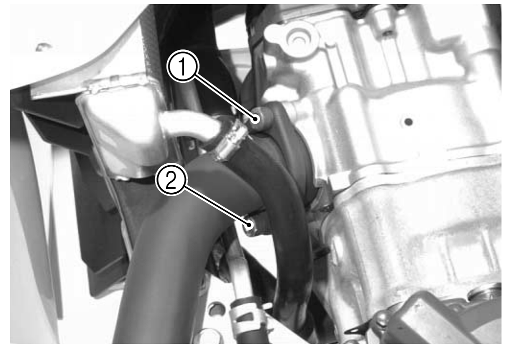
CAUTION

- * **Inspect the air cleaner element for tears. A torn element must be replaced.**
- * **The surest way to accelerate engine wear is to operate the engine without the element or with one that is torn. Make sure that the air cleaner element is in good condition at all times. Life of the engine depends largely on this component!**

- Remove the drain plug ③ to allow any water to drain out.



EXHAUST PIPE NUT AND BOLT AND MUFFLER NUT AND BOLTS

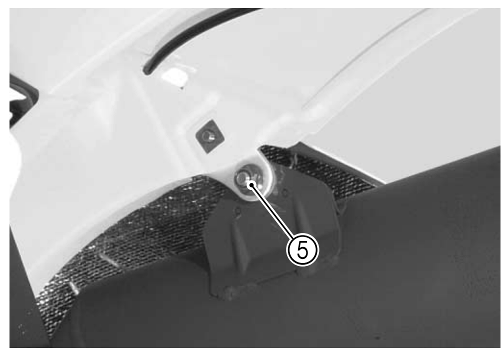


Tighten initially at five hours of operation and every 30 hours thereafter.

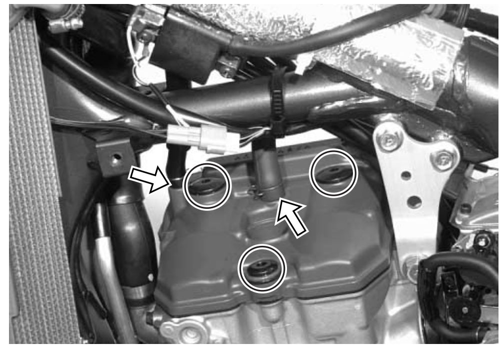
- Remove the right frame cover. (☞ 6-2)
- Tighten the exhaust pipe nut ①, exhaust pipe bolt ②, muffler connection bolt ③, muffler mounting bolt ④ and muffler mounting nut ⑤ to the specified torque.



Exhaust pipe nut and bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)
Muffler connection bolt: 20 N·m (2.0 kgf-m, 14.5 lb-ft)
Muffler mounting nut and bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)



TAPPET CLEARANCE



Inspect initially at five hours of operation and every 60 hours thereafter.

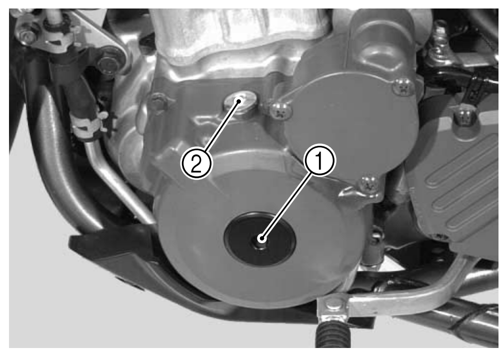
INSPECTION

- Remove the fuel tank. (☞ 4-2)
- Disconnect the spark plug cap and remove the spark plug. (☞ 2-9)
- Remove the cylinder head cover.

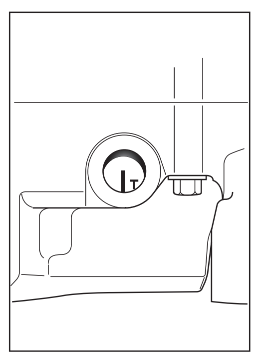
The tappet clearance specification is different for both intake and exhaust valves.
Tappet clearance adjustment must be checked and adjusted: 1) at the time of periodic inspection, 2) when the valve mechanism is serviced, and 3) when the camshafts are removed for servicing.

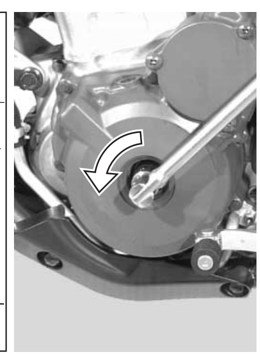
NOTE:
* *The piston must be at top dead center (TDC) on the compression stroke in order to check or adjust the tappet clearance.*
* *The tappet clearance should only be checked when the engine is cold.*

- Remove the generator cover cap ① and valve timing inspection plug ②.



- Rotate the crankshaft with a box wrench to set the piston at TDC on the compression stroke. (Rotate the crankshaft until the "T" line on the generator rotor is aligned with the center of the hole in the generator cover.)





- Insert a thickness gauge between the tappet and the cam. If the clearance is out of specification, adjust it to specification as follows.



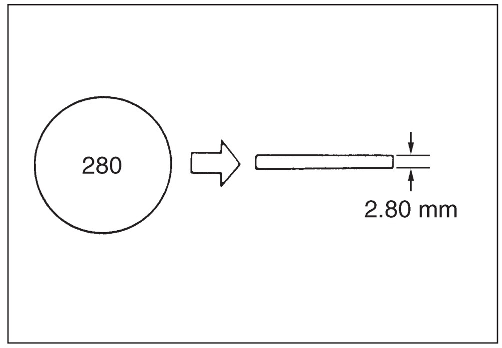
TOOL **09900-20803: Thickness gauge**

DATA **Tappet clearance (when cold)**
IN: 0.10 – 0.20 mm (0.0039 – 0.0079 in)
EX: 0.20 – 0.30 mm (0.0079 – 0.0118 in)

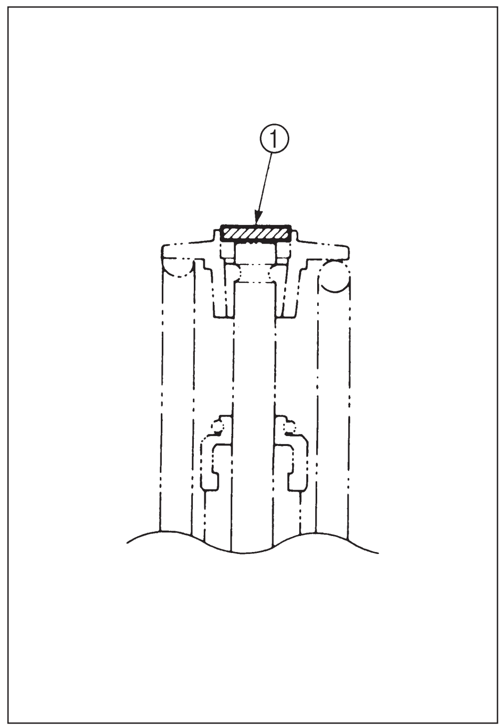
ADJUSTMENT

The clearance is adjusted by replacing the existing tappet shim with a thicker or thinner shim.

- Remove the intake or exhaust camshafts. (☞ 3-12)
- Remove the tappet and shim by hand or with a magnet. (☞ 3-22)



- Check the numbers printed on the tappet shim. These numbers indicate the thickness of the tappet shim, as illustrated.
- Select a replacement tappet shim that will provide the proper clearance. Tappet shims are available in 25 sizes, ranging from 2.30 to 3.50 mm (0.09 to 0.14 in) in increments of 0.05 mm (0.002 in). Install the selected shim ① at the valve stem end, with the numbers facing towards the tappet. Be sure to measure the shim with a micrometer to ensure that it is of the proper size.
  Refer to the tappet shim selection table for details.



NOTE:

∗ *Be sure to apply molybdenum oil solution to the top and bottom faces of the tappet shim.*

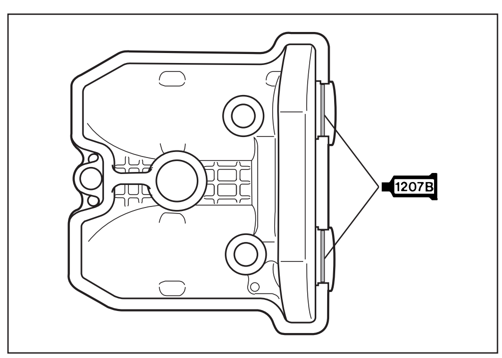
∗ *When installing the tappet shim, make sure that the side with the numbers face towards the tappet.*

⚠ CAUTION

Install the camshafts as specified. (☞ 3-61 to 3-63)

- After replacing the tappet shim and camshafts, rotate the crankshaft so that the tappet is depressed fully (this will squeeze out any oil trapped between the tappet shim and the tappet that could cause an incorrect measurement). After rotating the crankshaft, check the tappet clearance again to make sure that it is within specification.

- When installing the cylinder head cover, apply SUZUKI BOND "1207B" to the cam end caps of the cylinder head cover gasket.



For USA

1207B 99104-31140: SUZUKI BOND "1207B"

For the other countries

1207B 99000-31140: SUZUKI BOND "1207B"

- Tighten the cylinder head cover bolts to specification in two stages.

Cylinder head cover bolt

Initial: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

Final: 14 N·m (1.4 kgf-m, 10.0 lb-ft)

INTAKE SIDE

TAPPET SHIM SELECTION TABLE (INTAKE)
TAPPET SHIM NO. (12892-41C00-XXX)

TAPPET SHIM SET NO.(12800-41810)

MEASURED TAPPET CLEARANCE (mm) \ SUFFIX NO.	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350
PRESENT SHIM SIZE (mm)	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50
0.00–0.04			2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40
0.05–0.09		2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45
0.10–0.20	SPECIFIED CLEARANCE/NO ADJUSTMENT REQUIRED																								
0.21–0.25	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50	
0.26–0.30	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50		
0.31–0.35	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50			
0.36–0.40	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50				
0.41–0.45	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50					
0.46–0.50	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50						
0.51–0.55	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50							
0.56–0.60	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50								
0.61–0.65	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50									
0.66–0.70	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50										
0.71–0.75	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50											
0.76–0.80	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50												
0.81–0.85	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50													
0.86–0.90	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50														
0.91–0.95	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50															
0.96–1.00	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50																
1.01–1.05	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50																	
1.06–1.10	3.25	3.30	3.35	3.40	3.45	3.50	3.50																		
1.11–1.15	3.30	3.35	3.40	3.45	3.50	3.50																			
1.16–1.20	3.35	3.40	3.45	3.50	3.50																				
1.21–1.25	3.40	3.45	3.50	3.50																					
1.26–1.30	3.45	3.50	3.50																						
1.31–1.35	3.50	3.50																							
1.36–1.40	3.50																								

How to use this chart:

I. Measure tappet clearance when the engine is cold.
II. Measure present shim size.
III. Match clearance in vertical column with present shim size in horizontal column.

Example:

Tappet clearance is	0.23 mm
Present shim size	2.70 mm
Shim size to be used	2.80 mm

EXHAUST SIDE

TAPPET SHIM SELECTION TABLE (EXHAUST)
TAPPET SHIM NO. (12892-41C00-XXX)

TAPPET SHIM SET NO.(12800-41810) (suffix nos. 250–350)

MEASURED TAPPET CLEARANCE (mm) \ SUFFIX NO.	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350
PRESENT SHIM SIZE (mm)	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50
0.00–0.04					2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30
0.05–0.09				2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35
0.10–0.14			2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40
0.15–0.19		2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45
0.20–0.30	SPECIFIED CLEARANCE/NO ADJUSTMENT REQUIRED																								
0.31–0.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50	
0.36–0.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50		
0.41–0.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50			
0.46–0.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50				
0.51–0.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50					
0.56–0.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50						
0.61–0.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50							
0.66–0.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50								
0.71–0.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50									
0.76–0.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50										
0.81–0.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50											
0.86–0.90	2.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50												
0.91–0.95	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50													
0.96–1.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50														
1.01–1.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50															
1.06–1.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50																
1.11–1.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50																	
1.16–1.20	3.25	3.30	3.35	3.40	3.45	3.50	3.50																		
1.21–1.25	3.30	3.35	3.40	3.45	3.50	3.50																			
1.26–1.30	3.35	3.40	3.45	3.50	3.50																				
1.31–1.35	3.40	3.45	3.50	3.50																					
1.36–1.40	3.45	3.50	3.50																						
1.41–1.45	3.50	3.50																							
1.46–1.50	3.50																								

How to use this chart:

I. Measure tappet clearance when the engine is cold.
II. Measure present shim size.
III. Match clearance in vertical column with present shim size in horizontal column.

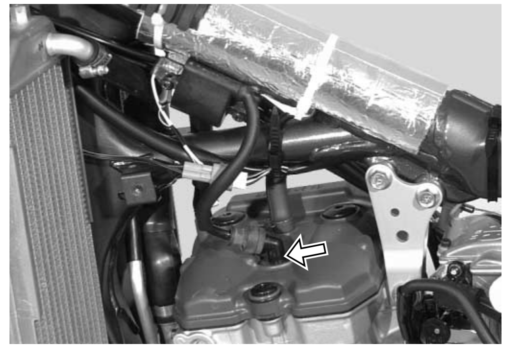
Example:

Tappet clearance is	0.38 mm
Present shim size	2.90 mm
Shim size to be used	3.05 mm

SPARK PLUG

Inspect every 30 hours of operation.
Replace every 60 hours of operation.

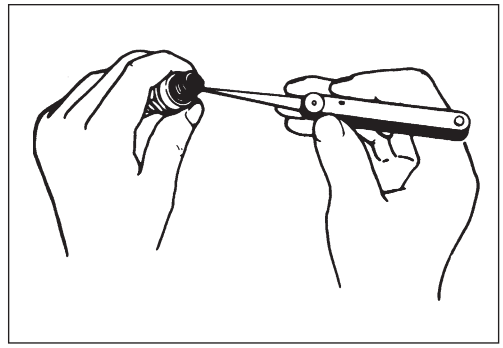
- Remove the fuel tank. (☞ 4-2)
- Disconnect the spark plug cap and remove the spark plug.



	Cold type	Standard	Hot type
NGK	CR9E CR10E	CR8E	CR7E
DENSO	U27ESR-N U31ESR-N	U24ESR-N	U22ESR-N

CARBON DEPOSITS

Check to see if there are carbon deposits on the spark plug. If carbon is deposited, remove it using a spark plug cleaner machine or carefully use a tool with a pointed end.

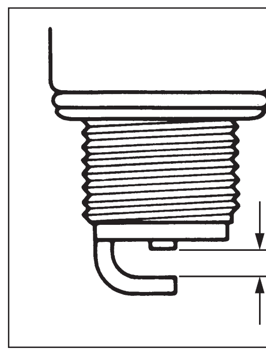


SPARK PLUG GAP

Measure the spark plug gap using a thickness gauge. If the spark plug gap is out of specification, adjust the gap.

DATA **Spark plug gap**
Standard: 0.7 – 0.8 mm (0.028 – 0.031 in)

TOOL **09900-20803: Thickness gauge**



ELECTRODE

Check the condition of the electrode.
If the electrode is extremely worn or burnt, replace the spark plug with a new one.
Also, replace the spark plug if it has a broken insulator, damaged threads, etc.

⚠ CAUTION

Check the thread size and reach when replacing the spark plug. If the reach is too short, carbon will be deposited on the screw portion of the spark plug hole and engine damage may result.

SPARK PLUG INSTALLATION

⚠ CAUTION

To avoid damaging the cylinder head threads; first, finger tighten the spark plug, and then tighten it to the specified torque using the spark plug wrench.

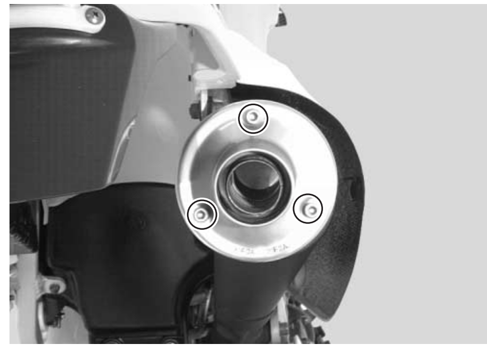
- Insert the spark plug and finger tighten it to the cylinder head, and then tighten it to the specified torque.

Spark plug: 11 N·m (1.1 kgf-m, 8.0 lb-ft)

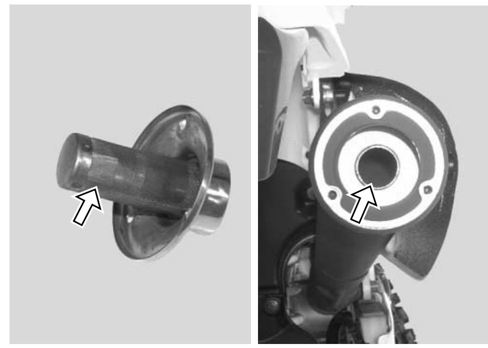
SPARK ARRESTER

Clean every 30 hours of operation.

- Remove the spark arrester.



- Remove the carbon deposits from spark arrester and muffler.



FUEL LINE

Inspect initially at five hours of operation and every 30 hours thereafter.
Replace every four years of operation.

Inspect the fuel hose for damage and fuel leakage. If any damages are found, replace the fuel hoses with new ones.



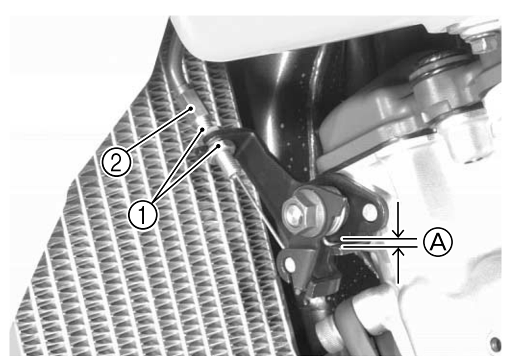
DECOMPRESSION LEVER (DR-Z400)

Inspect initially at five hours of operation and every 60 hours, thereafter.

Incorrect adjustment of the lever clearance may result in starting difficulties or engine damage. Check the lever clearance and if necessary, adjust as follows:

- Adjust the tappet clearance. (☞ 2-5 to 2-8)
- Loosen the locknuts ①.
- Turn the adjuster ② to provide the specified lever clearance Ⓐ.
- Tighten the locknuts ①.

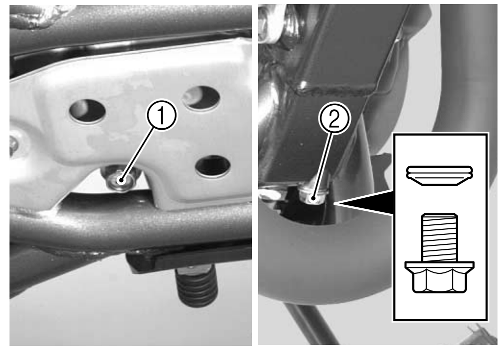
DATA **Decompression cable play Ⓐ:**
0 – 0.1 mm (0 – 0.004 in)



ENGINE OIL AND OIL FILTER

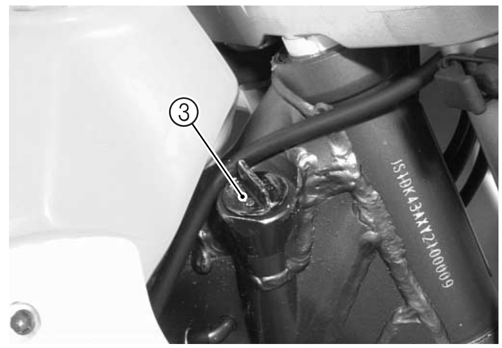
Replace initially at five hours of operation and every 60 hours thereafter.

The oil should be changed while the engine is warm. Oil filter replacement at the above intervals, should be done together with the engine oil change.



ENGINE OIL REPLACEMENT

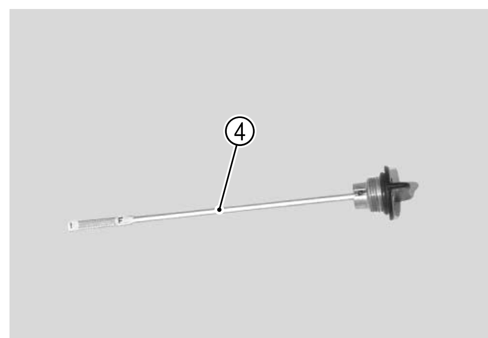
- Place an oil pan below the engine, and then drain the oil by removing the engine oil drain plugs (①, ②) and engine oil filler cap ③.
- Tighten the engine oil drain plugs (①, ②) to the specified torque, and then pour the new oil through the oil filler hole. When performing an oil change (without oil filter replacement), the engine will hold about 1.7 L (1.8 US qt, 1.5 Imp qt) of oil. Use an engine oil that meets API service classifications SF or SG and that has a viscosity rating of SAE 10W-40.



Engine oil drain plug
(on the crankcase) ①: 21 N·m (2.1 kgf-m, 15.0 lb-ft)
(on the frame) ②: 18 N·m (1.8 kgf-m, 13.0 lb-ft)

⚠ CAUTION

When installing the engine oil drain plug ② with gasket, face the taper of gasket to drain plug as shown.

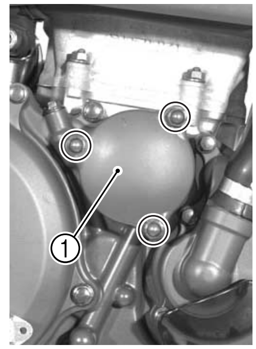


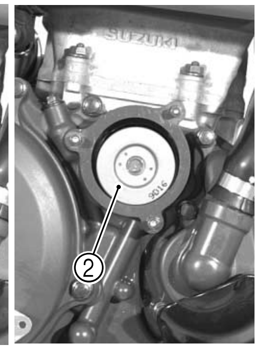
- Make sure that the engine is cooled.
- Place the motorcycle on level ground and hold it vertically.
- Install the oil filler cap ③.
- Start the engine and allow it to run for three minutes at idling speed.
- Turn off the engine and wait about three minutes, and then check the oil level on the dipstick ④. The oil level should be between the “L” (low) and “F” (full) level lines. If the oil level is lower than the “L” level line, add oil to the “F” level line.

NOTE:
Engine oil expands and oil level increase when the engine oil is hot.

OIL FILTER REPLACEMENT

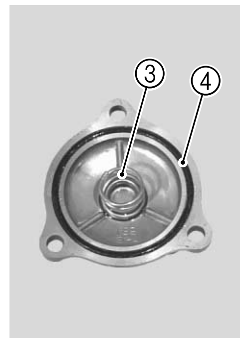
- Drain the engine oil as described in the engine oil replacement procedure.
- Remove the oil filter cap ① and oil filter ②.
- Replace the oil filter with a new one.

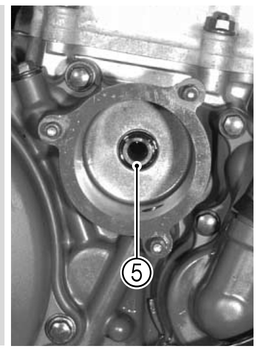




NOTE:
Before replacing the oil filter cap, make sure that the spring ③ and a new O-ring ④ are installed correctly.

- Make sure that the O-ring ⑤ behind the filter is in the correct position.





- Replace the oil filter cap and tighten the nut securely.
- Add new engine oil and check the oil level as described in the engine oil replacement procedure.



DATA **Engine oil capacity**

Oil change:	**1.7 L (1.8 US qt, 1.5 Imp qt)**
Oil and filter change:	**1.8 L (1.9 US qt, 1.6 Imp qt)**
Engine overhaul:	**1.9 L (2.0 US qt, 1.7 Imp qt)**

⚠ CAUTION

When reassembling the oil filter, make sure that the oil filter is installed as shown above. If the filter is installed improperly, serious engine damage may result.

ENGINE OIL HOSES

Inspect initially at five hours of operation and every 30 hours thereafter.

Inspect the engine oil hoses for damage and oil leakage. If any damages are found, replace the engine oil hoses with new ones.

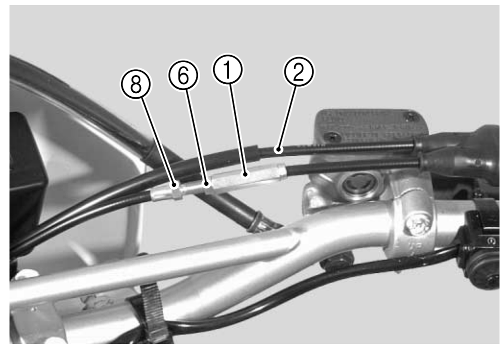


THROTTLE CABLE PLAY

Inspect initially at five hours of operation and every 30 hours thereafter.

- Remove the fuel tank. (☞ 4-2)

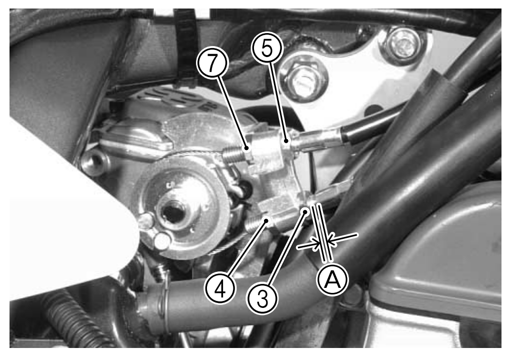
A twin throttle cable system is used in this motorcycle. Cable ① is for pulling and cable ② is for returning. To adjust the cable play, adjust the returning cable first and then adjust the pulling cable.



RETURNING CABLE PLAY

The returning cable should be adjusted to have a thread length Ⓐ of 3 mm (0.12 in) as shown in the illustration. If the adjustment is necessary, adjust the thread length in the following way:

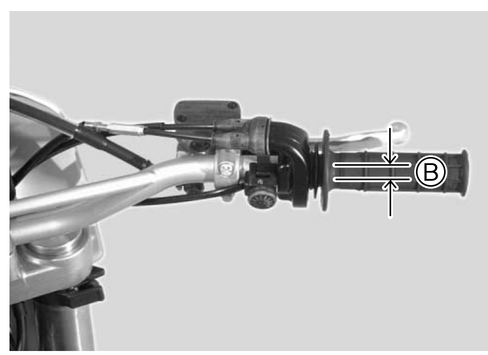
- Loosen the locknut ③.
- Turn the nut ④ to obtain the thread length Ⓐ of 3 mm (0.12 in).
- Tighten the locknut ③ securely.



PULLING CABLE PLAY

The pulling cable should be adjusted to have a cable play Ⓑ of 2 – 4 mm (0.08 – 0.16 in) as shown in the Fig. If the adjustment is necessary, adjust the cable play in the following way:

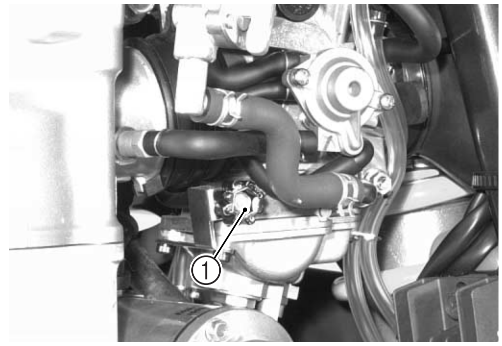
- Loosen the locknuts (⑤, ⑥).
- Turn the adjuster ⑦ or ⑧ to obtain the cable play Ⓑ of 2 – 4 mm (0.08 – 0.16 in).
- Tighten the locknuts (⑤, ⑥) securely.



⚠ WARNING

After the adjustment is completed, check that handle-bar movement does not raise the engine idle speed and that the throttle grip returns smoothly and automatically.

ENGINE IDLE SPEED



Inspect initially at five hours of operation and every 30 hours thereafter.

NOTE:
Make this adjustment when the engine is hot.

- Connect the multi circuit tester to the high-tension cord.
- Start the engine and set the engine idle speed between 1 700 and 1 900 r/min by turning the throttle stop screw ①.



DATA **Engine idle speed: 1 800 ± 100 r/min**

TOOL **09900-25008: Multi circuit tester set**

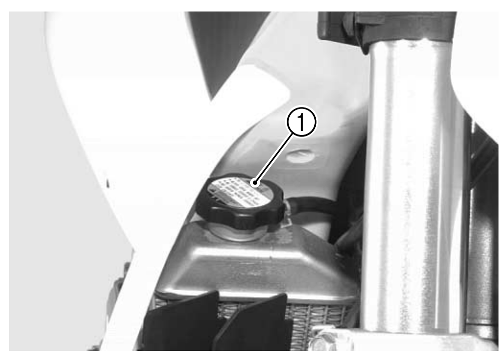
ENGINE COOLANT

Replace every two years of operation.

ENGINE COOLANT LEVEL CHECK

NOTE:
This motorcycle has an overflow tank at the end of the breather hose. Therefore, the engine coolant level may decrease while riding. Check the engine coolant level before every ride.

- Remove the radiator cap ① and check that the engine coolant level is at the bottom of the inlet hole.
- If not, replenish the radiator with the specified coolant.



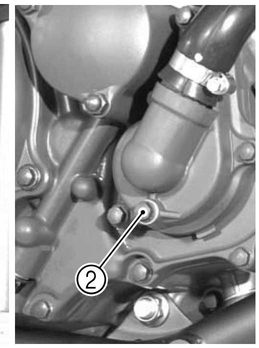
⚠ WARNING

- ∗ **Do not open the radiator cap when the engine is hot, as you may be injured by escaping hot liquid or vapor.**
- ∗ **Engine coolant may be harmful if swallowed or if it comes in contact with the skin or eyes. If engine coolant gets into the eyes or contacts the skin, flush the eyes or wash the skin thoroughly, with plenty of water. If engine coolant is swallowed, induce vomiting and call a physician immediately.**

ENGINE COOLANT REPLACEMENT

- Remove the radiator cap ① and drain plug ②. Then drain the engine coolant.
- Tighten the drain plug ②.
- Pour the specified engine coolant slowly into the radiator.





LLC **Engine coolant:**
Use an antifreeze designed for aluminum radiators mixed with distilled water only.
Water/antifreeze mixture ratio: 50:50 – 40:60



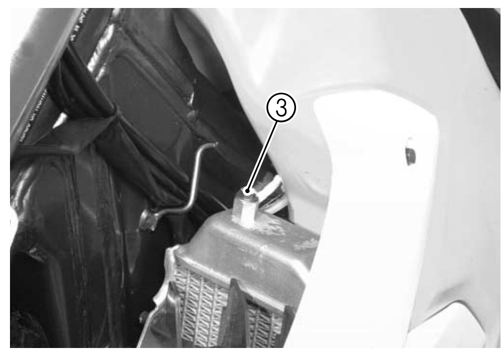
NOTE:
For engine coolant information, refer to page 5-4.

AIR BLEEDING THE ENGINE COOLANT CIRCUIT

- Bleed air from the air bleeder bolt ③.
- Tighten the air bleeder bolt ③ to the specified torque.

Air bleeder bolt: 6.0 N·m (0.6 kgf-m, 4.3 lb-ft)

- Add engine coolant up to the radiator inlet.
- Tighten the radiator cap securely.
- After warming up and cooling down the engine, add the specified engine coolant.

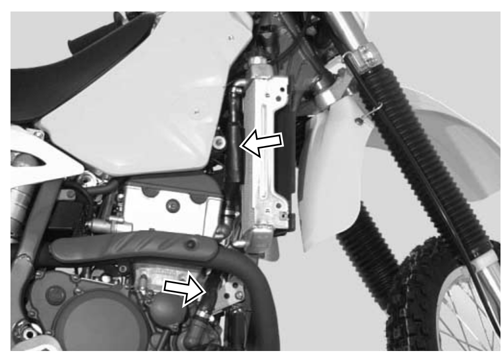


DATA **Engine coolant capacity:**
1 250 ml (1.3 US qt, 1.1 Imp qt)

RADIATOR HOSES

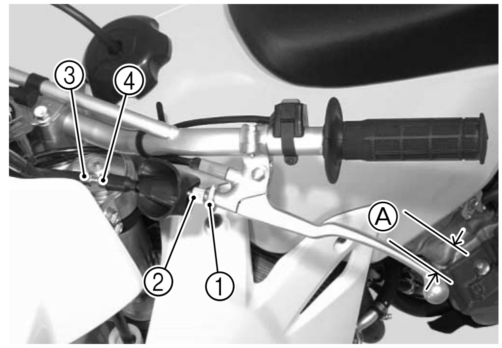
Inspect initially at five hours of operation and every 30 hours thereafter.

Inspect the radiator hoses for damage and engine coolant leakage. If any damages are found, replace the radiator hoses with new ones.



CLUTCH

Inspect initially at five hours of operation and every 30 hours thereafter.



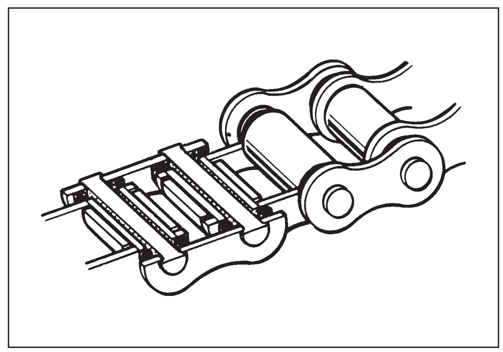
- Loosen the locknut ① and turn the adjuster ② fully in.
- Loosen the locknut ③ and turn the adjuster ④ until the clutch lever play Ⓐ is within specification.

DATA **Clutch lever play Ⓐ: 10 – 15 mm (0.4 – 0.6 in)**

- Tighten the locknuts.

DRIVE CHAIN

Clean, lubricate and inspect each time the motorcycle is ridden.



With the transmission in neutral, support the motorcycle using a jack or wooden block and turn the rear wheel slowly by hand. Visually inspect the drive chain for the possible damages listed below.

∗ Loose pins
∗ Damaged rollers
∗ Rusted links
∗ Missing O-ring seals
∗ Twisted or seized links
∗ Kinked or binding links
∗ Excessive wear

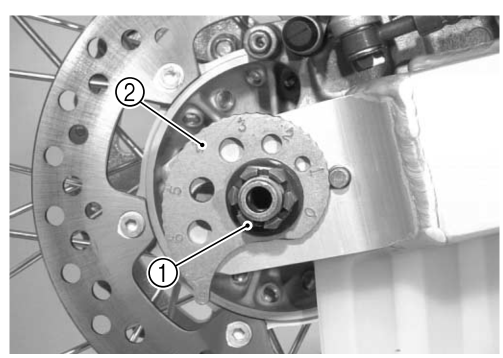
If any damages are found, replace the drive chain with a new one.

⚠ CAUTION

The standard drive chain is RK520KZO. SUZUKI recommends to use this standard drive chain as a replacement.

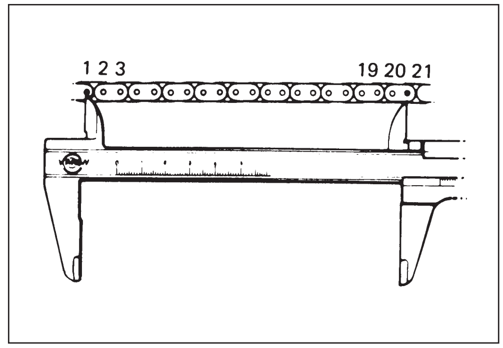
NOTE:
When replacing the drive chain, replace the drive chain and sprockets as a set.

CHECKING AND ADJUSTING



- Remove the cotter pin. (E-03, 28)
- Remove the rear axle nut ①.
- Tense the drive chain fully by turning both drive chain adjusters ②.

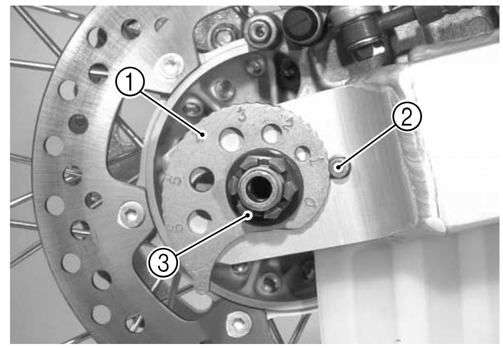
- Count out 21 pins (20-pitch) on the drive chain and measure the distance between the two points. If the distance exceeds the service limit, replace the drive chain with a new one.



TOOL **09900-20103: Vernier calipers**

DATA **Drive chain 20-pitch length**
Service Limit: 319.4 mm (12.57 in)

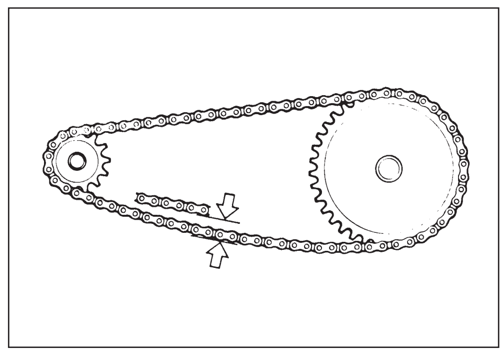
- Loosen or tighten both chain adjusters ① until there is 40 – 50 mm (1.6 – 2.0 in) of slack at the middle of the chain between the engine and rear sprockets as shown. The reference marks ② on both sides of the swingarm and the edge of each chain adjuster must be aligned to ensure that the front and rear wheels are correctly aligned.



DATA **Drive chain slack: 40 – 50 mm (1.6 – 2.0 in)**

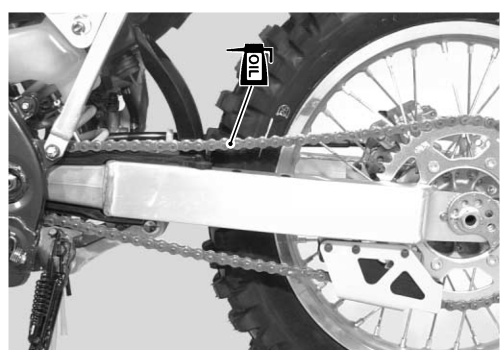
- After adjusting the drive chain, tighten the rear axle nut ③ to the specified torque.

Rear axle nut:
100 N·m (10.0 kgf-m, 72.5 lb-ft) .. for E-03, 28
110 N·m (11.0 kgf-m, 79.5 lb-ft) .. for the other countries



CLEANING AND LUBRICATING

- Clean the drive chain with kerosine. If the drive chain tends to rust quickly, the intervals must be shortened.



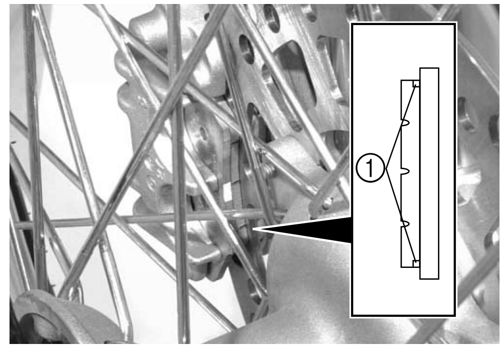
⚠ CAUTION

Do not use trichlene, gasoline or any similar fluids. These fluids have too great a dissolving power for this chain and, what is more important, they can damage the O-rings (or seals) confining the grease in the bushing to pin clearance. Remember, high durability comes from the presence of grease in that clearance.

- After cleaning and drying the chain, oil it with a heavyweight engine oil.

BRAKES

Inspect initially at five hours of operation and every 30 hours thereafter.

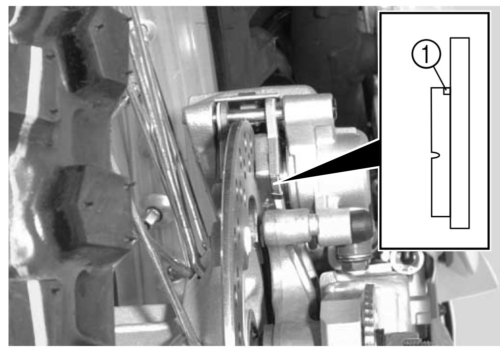


BRAKE PADS

The extent of brake pad wear can be checked by observing the grooved limit line ① on the brake pad. When the wear exceeds the grooved limit line, replace the pads with new ones.
(☞ 6-46 and 6-55)

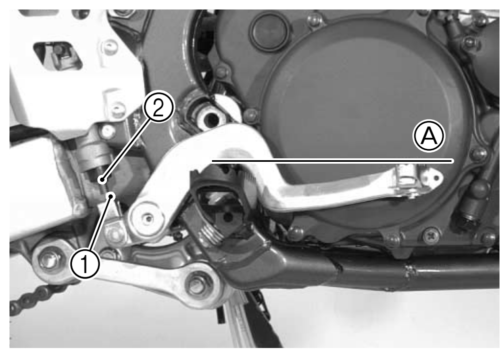
⚠ CAUTION

Replace the brake pads as a set, otherwise braking performance will be adversely affected.



BRAKE PEDAL HEIGHT

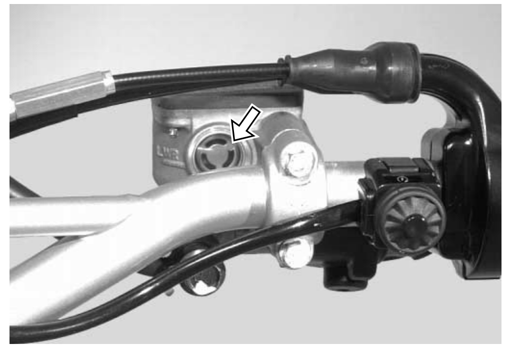
- Loosen the locknut ①.
- Adjust the brake pedal height by turning the push rod ② until the pedal is 5 mm (0.2 in) Ⓐ below the top face of the footrest.
- Tighten the locknut ① securely.



DATA **Brake pedal height: 5 mm (0.2 in)**

BRAKE FLUID

Inspect initially at five hours of operation and every 30 hours thereafter.
Replace every two years of operation.





BRAKE FLUID LEVEL

- Keep the motorcycle upright and place the handlebar straight.
- Check the brake fluid level by observing the lower limit line on the front and rear brake fluid reservoir.
- When the brake fluid level is below the lower limit line, add brake fluid that meets the following specification to the specified level.

BF **Specification and classification: DOT 4**

⚠ WARNING

- ∗ **The brake system is filled with an glycol-based brake fluid, which is classified DOT 4. Do not use or mix other types of brake fluid, such as silicone-based and petroleum-based brake fluids when refilling the brake system, otherwise serious damage to the brake system will result.**
- ∗ **Do not use any brake fluid taken from old, used, or unsealed containers.**
- ∗ **Do not reuse brake fluid left over from the last servicing or which has been stored for a long period of time.**
- ∗ **When storing brake fluid, make sure to seal the container completely and keep it out of the reach of children.**
- ∗ **When replenishing brake fluid, make sure not to get any dust or other foreign materials in the fluid.**
- ∗ **Brake fluid, if it leaks, will interfere with safe running and immediately discolor painted surfaces. Check the brake hoses and hose joints for cracks and oil leakage before riding.**

AIR BLEEDING THE BRAKE FLUID CIRCUIT

Air trapped in the brake fluid circuit acts like a cushion to absorb a large proportion of the pressure developed by the master cylinder and thus interferes with the full braking performance of the brake caliper. The presence of air is indicated by “sponginess” of the brake lever and also by lack of braking force. Considering the danger to which such trapped air exposes the machine and rider, it is essential that, after remounting the brake and restoring the brake system to the normal condition, the brake fluid circuit be purged of air in the following manner:

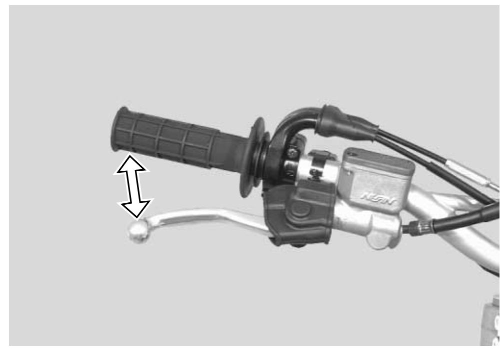
- Fill the master cylinder reservoir to the top of the inspection window. Replace the reservoir cap to prevent dirt from entering.
- Attach a hose to the air bleeder valve, and insert the free end of the hose into a receptacle.

FRONT BRAKE

Bleed air from the brake system.

- Squeeze and release the brake lever several times in rapid succession and squeeze the lever fully without releasing it. Loosen the air bleeder valve by turning it a quarter of a turn so that the brake fluid runs into the receptacle, this will remove the tension of the brake lever causing it to touch the handlebar grip. Then, close the air bleeder valve, pump and squeeze the lever, and open the valve. Repeat this process until the fluid flowing into the receptacle no longer contains air bubbles.





NOTE:
While bleeding the brake system, replenish the brake fluid in the reservoir as necessary. Make sure that there is always some fluid visible in the reservoir.

- Close the air bleeder valve, and disconnect the hose. Fill the reservoir with brake fluid to the top of the inspection window.

Air bleeder valve: 7.5 N·m (0.75 kgf-m, 5.5 lb-ft)

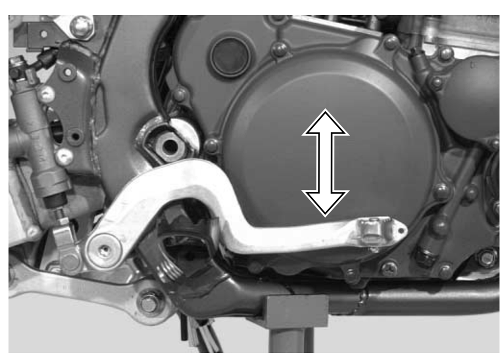
CAUTION

Handle brake fluid with care: the fluid reacts chemically with paint, plastics, rubber materials, etc.

REAR BRAKE

The only difference between bleeding the front and rear brake is that the rear master cylinder is actuated by a pedal.

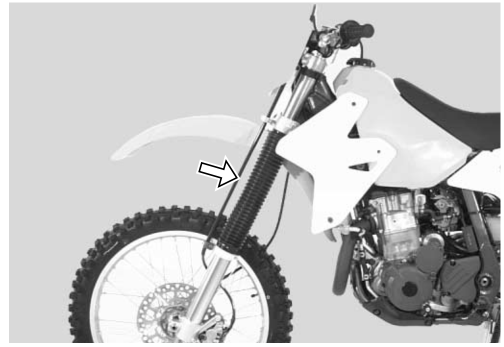




BRAKE HOSES

Inspect initially at five hours of operation and every 30 hours thereafter.
Replace every four years of operation.

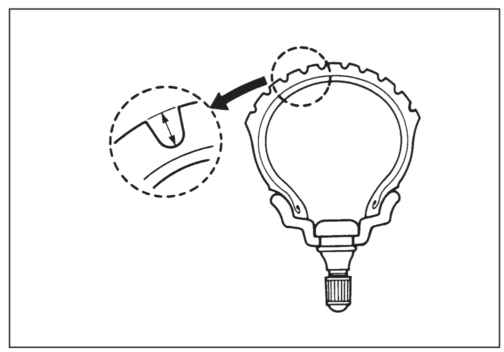
- Check the brake hoses for leakage, cracks, wear and damage. If any damages are found, replace the brake hoses with new ones.





TIRES

Check tire pressure and the tire for damage each time the motorcycle is ridden.



TIRE TREAD CONDITION

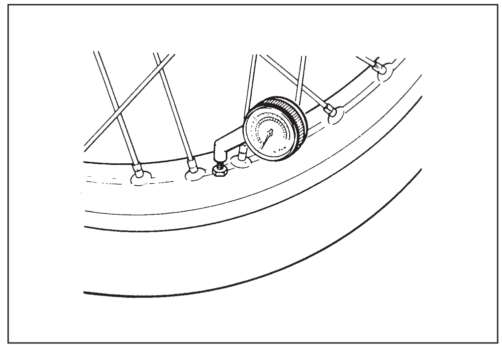
Operating the motorcycle with excessively worn tires will decrease riding stability and consequently invite a dangerous situation. It is highly recommended to replace a tire when the remaining depth of the tire tread reaches the following specification.

TOOL **09900-20805: Tire depth gauge**

DATA **Tire tread depth**
Service Limit: Front 4.0 mm (0.16 in)
Rear 4.0 mm (0.16 in)

TIRE PRESSURE

If the tire pressure is too high or too low, steering will be adversely affected and tire wear will increase. Therefore, maintain the correct tire pressure for good roadability and a longer tire life. Cold inflation tire pressure is as follows.

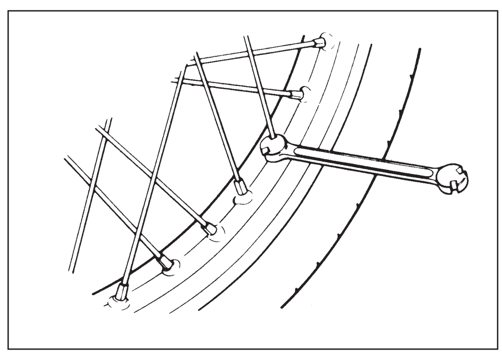


COLD INFLATION TIRE PRESSURE	kPa	kgf/cm²	psi
FRONT	100	1.0	14
REAR	100	1.0	14

CAUTION

The standard tire fitted on this motorcycle is a 80/100-21 51M for the front and a 110/100-18 64M for the rear. The use of tires other than those specified may cause instability. It is highly recommended to use the specified tires.

SPOKE NIPPLES



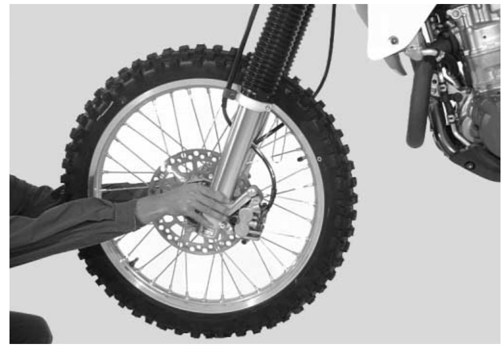
CAUTION

Inspect each time the motorcycle is ridden.

Make sure that the nipples are tight. If necessary, tighten them with a spoke nipple wrench.

Spoke nipple: 3.0 N·m (0.3 kgf-m, 2.0 lb-ft)

STEERING



Inspect initially at five hours of operation and every 60 hours thereafter.

The steering should be adjusted properly for smooth turning of the handlebar and safe operation. Overtight steering prevents smooth turning of the handlebar and too loose steering will cause poor stability. Check that there is no play in the front fork. Support the motorcycle so that the front wheel is off the ground. With the wheel facing straight ahead, grasp the lower fork tubes near the axle and pull forward. If play is found, adjust the steering. (☞ 6-23)

FRONT FORK

Inspect initially at five hours of operation and every 60 hours thereafter.

Inspect the front forks for oil leakage, scoring, or scratches on the outer surface of the inner tubes. If any damages are found, replace the front fork with a new one. (☞ 6-13 and 6-14)

REAR SUSPENSION

Inspect initially at five hours of operation and every 60 hours thereafter.

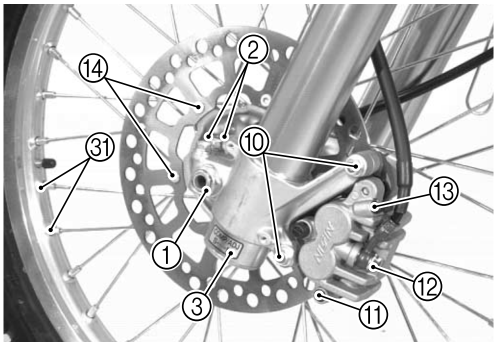
Inspect the rear shock absorber for oil leakage and damage. If any damages are found, replace the rear shock absorber with a new one.

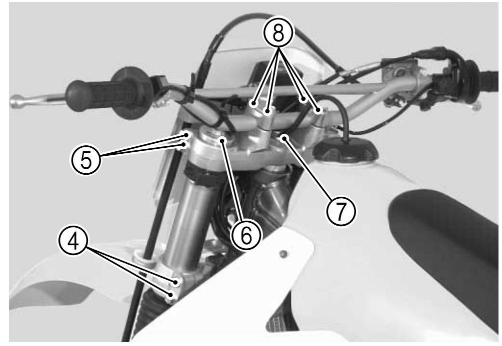
CHASSIS NUTS AND BOLTS

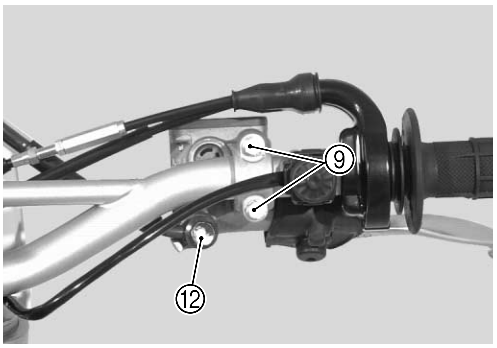
Tighten initially at five hours of operation and every 30 hours thereafter.

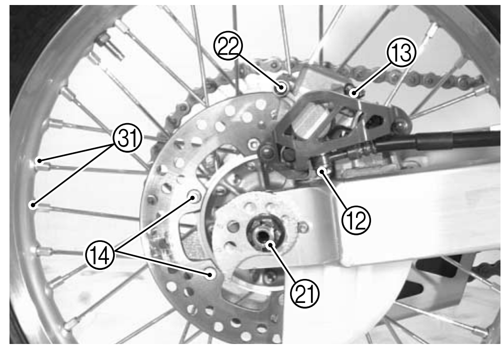
Check that all chassis nuts and bolts are tightened to their specified torque. (Refer to page 2-25 for the locations of following the nuts and bolts.)

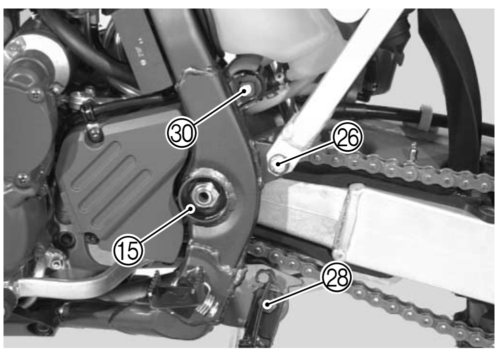
ITEM		N·m	kgf-m	lb-ft
① Front axle nut		42	42	30.5
② Front axle pinch bolt		18	1.8	13.0
③ Front fork damper rod bolt		80	8.0	58.0
④ Front fork lower clamp bolt		32	3.2	23.0
⑤ Front fork upper clamp bolt		30	3.0	21.5
⑥ Front fork cap bolt		23	2.3	16.5
⑦ Steering stem head nut		90	9.0	65.0
⑧ Handlebar clamp bolt		23	2.3	16.5
⑨ Front brake master cylinder mounting bolt		10	1.0	7.0
⑩ Front brake caliper mounting bolt		26	2.6	19.0
⑪ Front brake pad mounting pin		18	1.8	13.0
⑫ Brake hose union bolt (front & rear)		23	2.3	16.5
⑬ Brake air bleeder valve (front & rear)		7.5	0.75	5.5
⑭ Brake disc mounting bolt (front & rear)		10	1.0	7.0
⑮ Swingarm pivot nut		77	7.7	55.5
⑯ Rear brake pedal bolt		29	2.9	21.0
⑰ Rear shock absorber mounting nut (upper & lower)		55	5.5	40.0
⑱ Cushion rod mounting nut		100	10.0	72.5
⑲ Cushion lever mounting nut (front)		100	10.0	72.5
⑳ Cushion lever mounting nut (center)		100	10.0	72.5
㉑ Rear axle nut	E-03, 28	100	10.0	72.5
	The other countries	110	11.0	79.5
㉒ Rear brake pad mounting pin		18	1.8	13.0
㉓ Rear brake master cylinder mounting bolt		10	1.0	7.0
㉔ Rear brake master cylinder rod locknut		18	1.8	13.0
㉕ Seat rail mounting nut (upper)		35	3.5	25.5
㉖ Seat rail mounting bolt (lower)		35	3.5	25.5
㉗ Rear sprocket nut		30	3.0	21.5
㉘ Side-stand bolt		50	5.0	36.0
㉙ Side-stand nut		55	5.5	40.0
㉚ Drive chain roller mounting bolt (upper & lower)		40	4.0	29.0
㉛ Spoke nipple		3	0.3	2.0

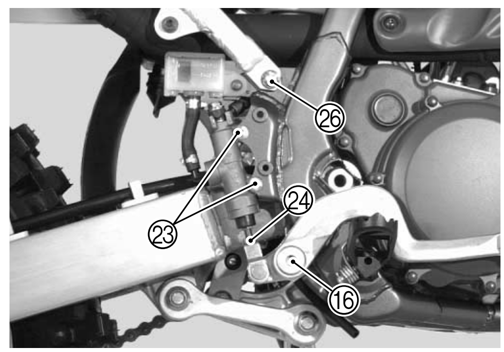

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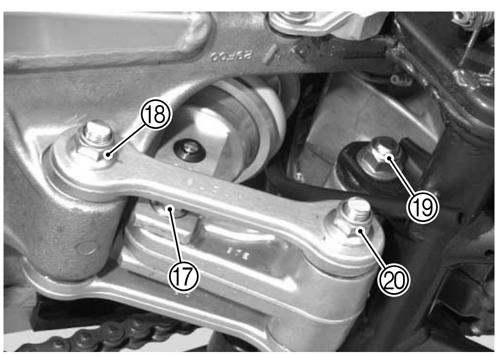

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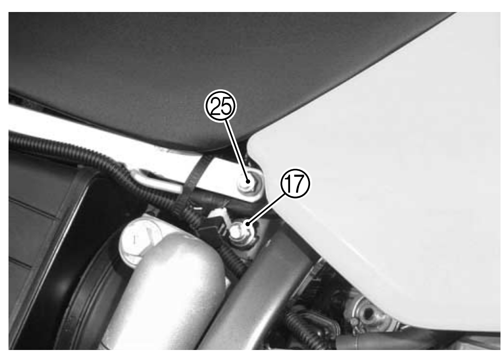

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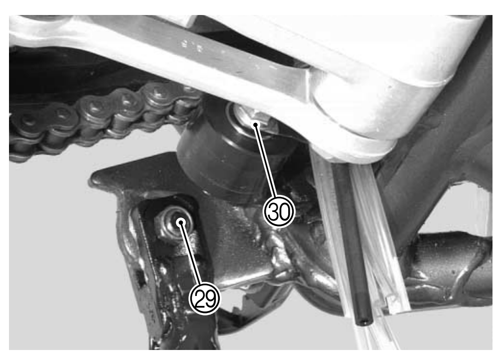

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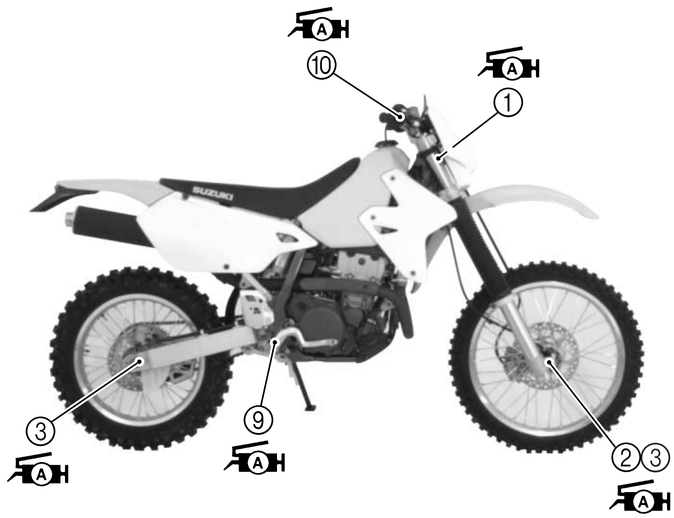

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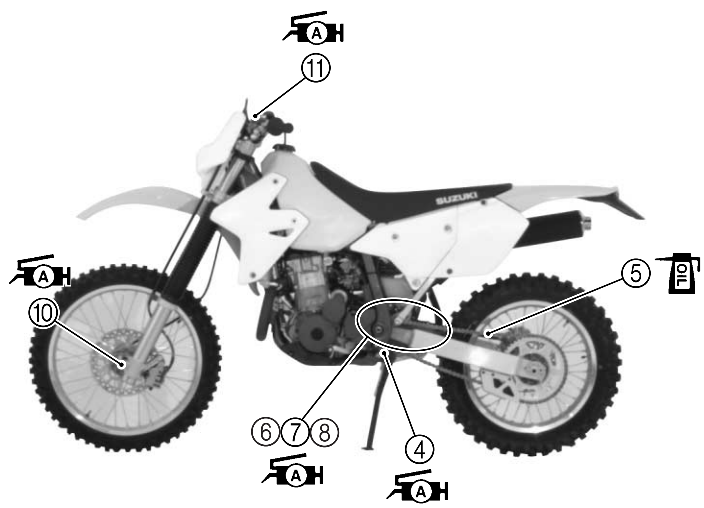

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GENERAL LUBRICATION

Proper lubrication is important for smooth operation and long life of each working part of the motorcycle. Major lubrication points are indicated below.





① Odometer cable
② Odometer gearbox
③ Wheel bearing
④ Sidestand pivot
⑤ Drive chain
⑥ Swingarm pivot
⑦ Cushion lever pivot
⑧ Cushion lever rod pivot
⑨ Brake pedal pivot
⑩ Brake lever holder
⑪ Clutch lever holder

NOTE:

* *Before lubricating each part, remove any rust and wipe off any grease, oil, dirt, or grime.*
* *Lubricate exposed parts which are subject to rust, with a rust preventative spray, especially whenever the motorcycle has been operated under wet or rainy conditions.*

COMPRESSION PRESSURE CHECK (DR-Z400E)

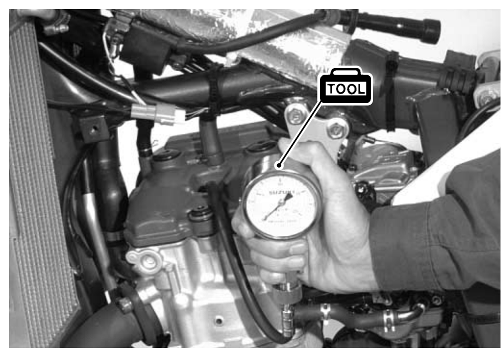
The compression pressure reading of a cylinder is a good indicator of its internal condition.
The decision to overhaul the cylinder is often based on the results of a compression test. Periodic maintenance records kept at your dealership should include compression readings for each maintenance service.

DATA **Compression pressure**
Standard: 1 000 kPa (10.0 kgf/cm^2, 142 psi)
(Automatic decompression actuated)

Low compression pressure can indicate any of the following conditions:
* Excessively worn cylinder walls
* Worn piston or piston rings
* Piston rings stuck in grooves
* Poor valve seating
* Ruptured or otherwise defective cylinder head gasket

NOTE:
When the compression pressure goes below specification, check the engine for conditions listed above.

COMPRESSION TEST PROCEDURE



NOTE:
* *Before testing the engine for compression pressure, make sure that the cylinder head bolts are tightened to the specified torque values and the valves are properly adjusted.*
* *Warm up the engine before testing.*
* *Make sure that the battery is fully charged.*

Remove the related parts and test the compression pressure in the following manner.

- Remove the spark plug. (☞ 2-9)
- Install the compression gauge and adaptor in the spark plug hole. Make sure that the connection is tight.
- Keep the throttle lever in the fully open position.
- Press the starter button and crank the engine for a few seconds.
- Record the maximum gauge reading as the cylinder compression.

TOOL **09915-64510: Compression gauge set**
09915-63310: Adaptor

OIL PRESSURE CHECK

Check the engine oil pressure periodically. This will give a good indication of the condition of the moving parts.

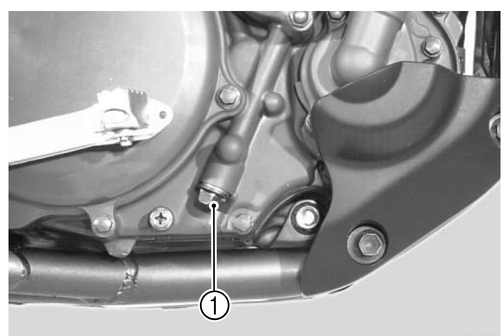
DATA **Oil pressure:**
Above 40 kPa (0.4 kgf/cm², 5.7 psi)
Below 140 kPa (1.4 kgf/cm², 19.9 psi) **at 3 000 r/min, oil temp at 60°C**

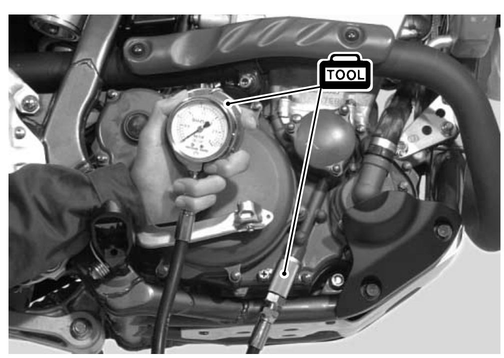
Low or high oil pressure can indicate any of the following conditions:
LOW OIL PRESSURE
* Clogged oil filter
* Oil leakage from the oil passage
* Damaged O-ring
* Defective oil pump
* Combination of the above items

HIGH OIL PRESSURE
* Engine oil viscosity is too high
* Clogged oil passage
* Combination of the above items

OIL PRESSURE TEST PROCEDURE

- Connect a tachometer to the high-tension cord.
- Remove the main oil gallery plug ①.
- Install the oil pressure gauge and adaptor into the main oil gallery.
- Warm up the engine as follows:
  Summer: 10 minutes at 2 000 r/min
  Winter: 20 minutes at 2 000 r/min
- After warming up the engine, increase the engine speed to 3 000 r/min (check the tachometer), and then read the oil pressure gauge.





TOOL **09915-74510: Oil pressure gauge**
09915-70610: Adapter

ENGINE

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ENGINE COMPONENTS REMOVABLE WITH ENGINE IN PLACE

The parts listed below can be removed and installed without removing the engine from the frame. Refer to the page listed in each section for removal and installation instructions.

ENGINE LEFT SIDE

PARTS	REMOVAL	INSTALLATION
Engine sprocket	3-6	3-9
Starter drive/driven gear (DR-Z400E)	3-14	3-57, 3-58
Generator rotor	3-19	3-50
Starter clutch	3-19	3-50

ENGINE RIGHT SIDE

PARTS	REMOVAL	INSTALLATION
Exhaust pipe/muffler	3-5	3-10
Oil filter	3-14	–
Kick lever (DR-Z400)	3-4	3-10
Clutch pressure plate, drive plates, and driven plates	3-16	3-56
Clutch sleeve hub	3-16	3-56
Primary driven gear assembly	3-17	3-56
Oil pump drive/driven gear	3-18	3-53
Oil pump	3-18	3-53
Gearshift shaft	3-18	3-53
Gearshift cam driven gear	3-19	3-52
Balancer drive/driven gear	3-19	3-51
Kick starter drive/driven gear (DR-Z400)	3-17	3-54

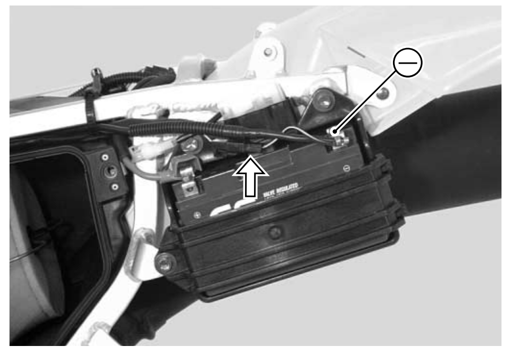
ENGINE CENTER

PARTS	REMOVAL	INSTALLATION
Carburetor	4-10	4-15
Starter motor (DR-Z400E)	3-4	–
Cam chain tension adjuster	3-11	3-64
Cylinder head cover	3-11	3-63
Camshaft/automatic decompression assembly	3-12	3-61
Decompression lever assembly (DR-Z400)	3-12	3-61
Cylinder head	3-13	3-60
Cylinder	3-13	3-60
Piston	3-13	3-59
Cam chain	3-17	3-55

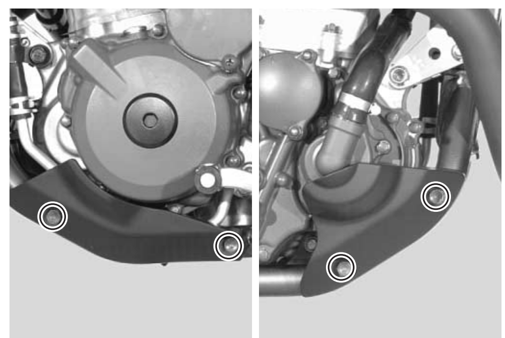
ENGINE REMOVAL AND REMOUNTING
ENGINE REMOVAL

Before taking the engine out of the frame, wash the engine using a steam cleaner. Engine removal is sequentially explained in the following steps.

- Remove the seat and frame covers. (☞ 6-2)
- Drain the engine oil. (☞ 2-11)
- Drain the engine coolant. (☞ 2-15)
- Remove the carburetor. (☞ 4-10)
- Disconnect the ⊖ battery lead wire and engine ground coupler. (DR-Z400E)



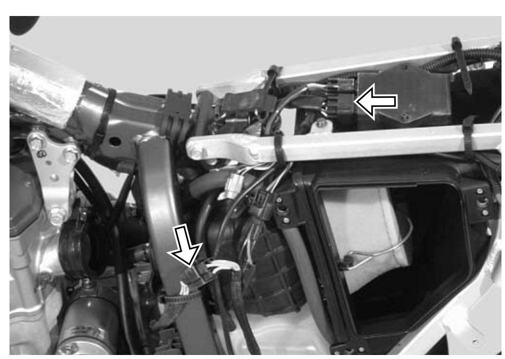
- Remove the engine side covers.



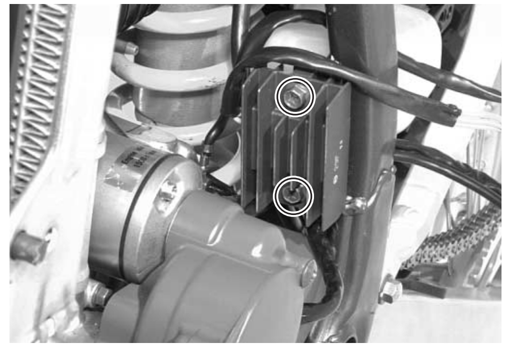
- Remove the engine plate.



- Disconnect the generator couplers.



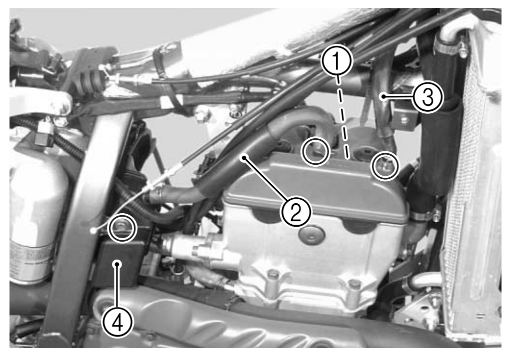
- Remove the regulator/rectifier.



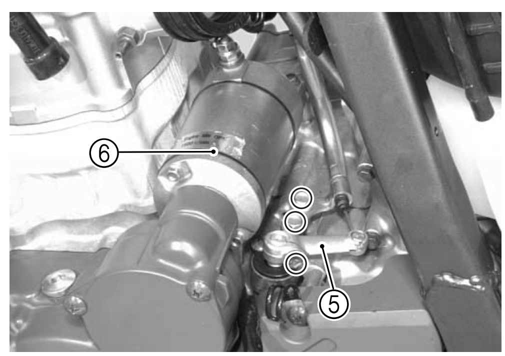
- Remove the engine coolant overflow tank mounting bolt.



- Disconnect the spark plug cap ①, engine oil breather hose ②, engine oil hose ③, and engine oil tank ④.



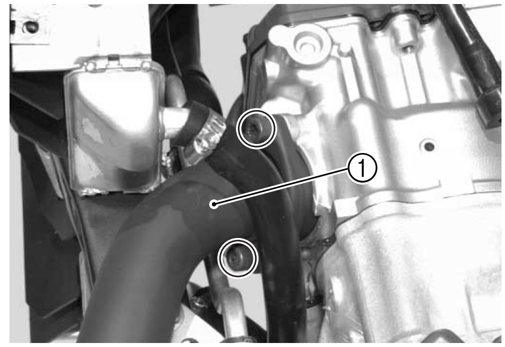
- Remove the clutch release arm ⑤.
- Remove the starter motor ⑥. (DR-Z400E)

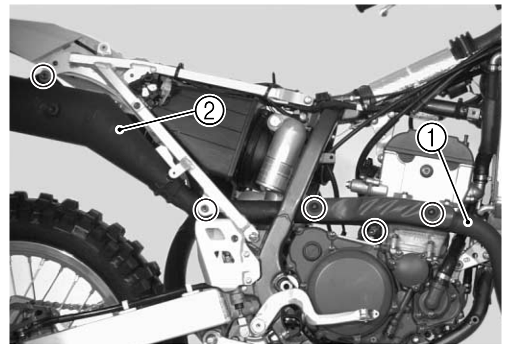


- Remove the kick lever. (DR-Z400)

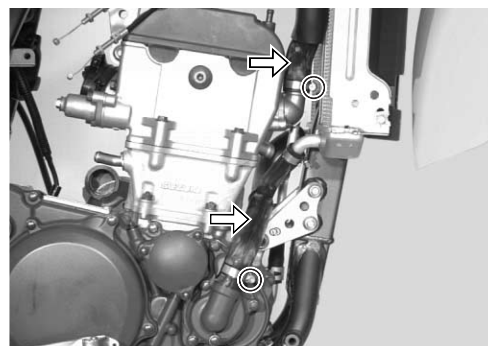


- Remove the exhaust pipe ① and muffler ②.

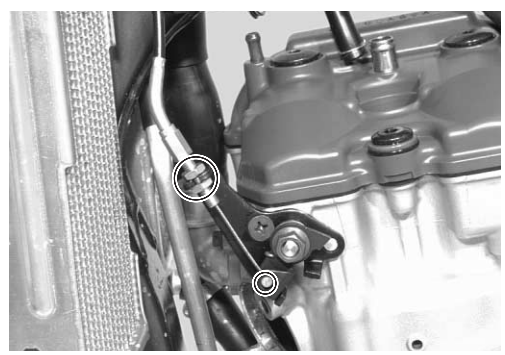




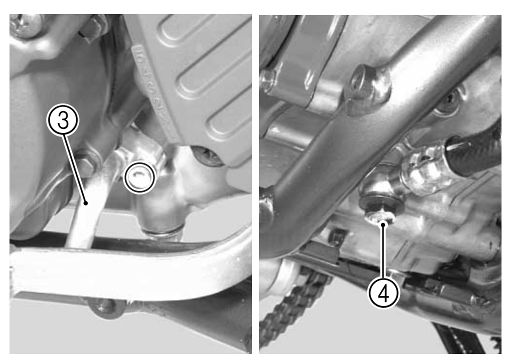
- Disconnect the radiator hoses.



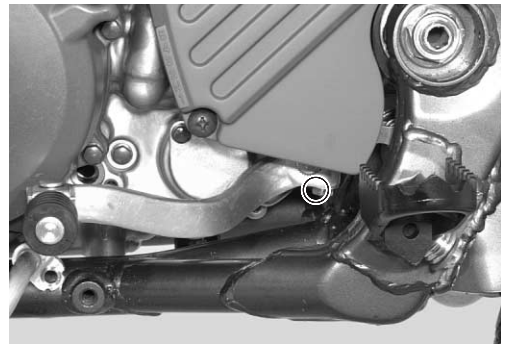
- Disconnect the decompression cable. (DR-Z400)



- Disconnect the engine oil pipe ③ and engine oil hose union bolt ④.



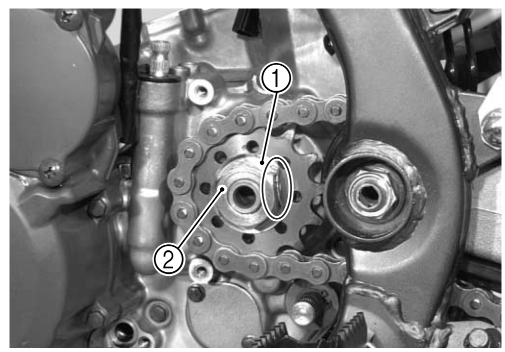
- Remove the gearshift lever.



- Remove the engine sprocket cover.



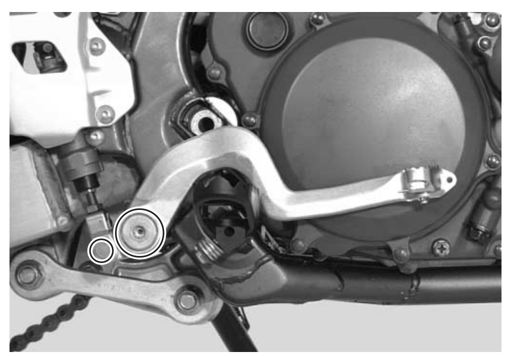
- Flatten the washer ① and remove the engine sprocket nut ② while pressing down on the rear brake pedal.



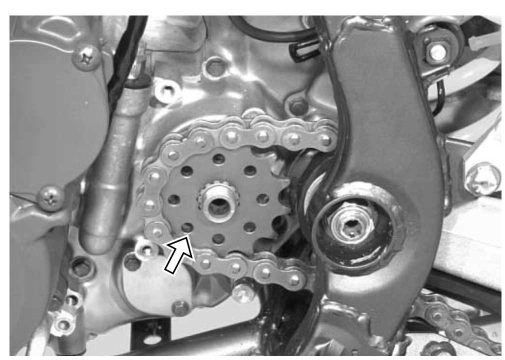
- Remove the cotter pins and brake pedal.

⚠ CAUTION

Replace the removed cotter pins with new ones.

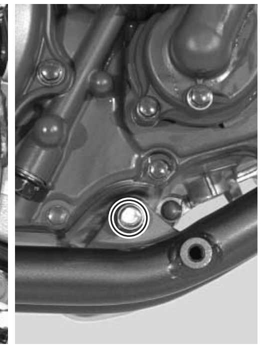


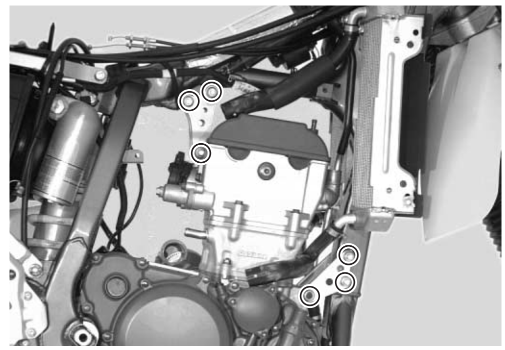
- Remove the engine sprocket.



- Remove the engine from the frame.

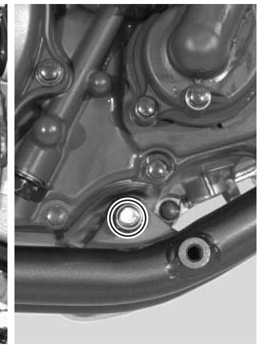


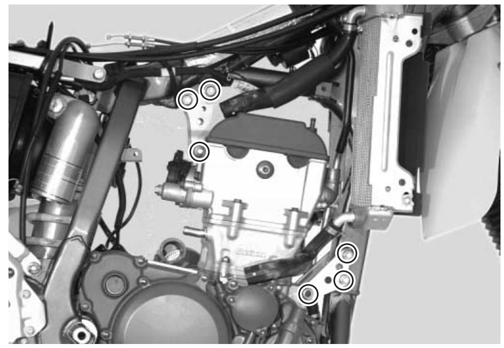




ENGINE REMOUNTING







Remount the engine in the reverse order of engine removal.

- Install the engine mounting nuts and bolts.

NOTE:

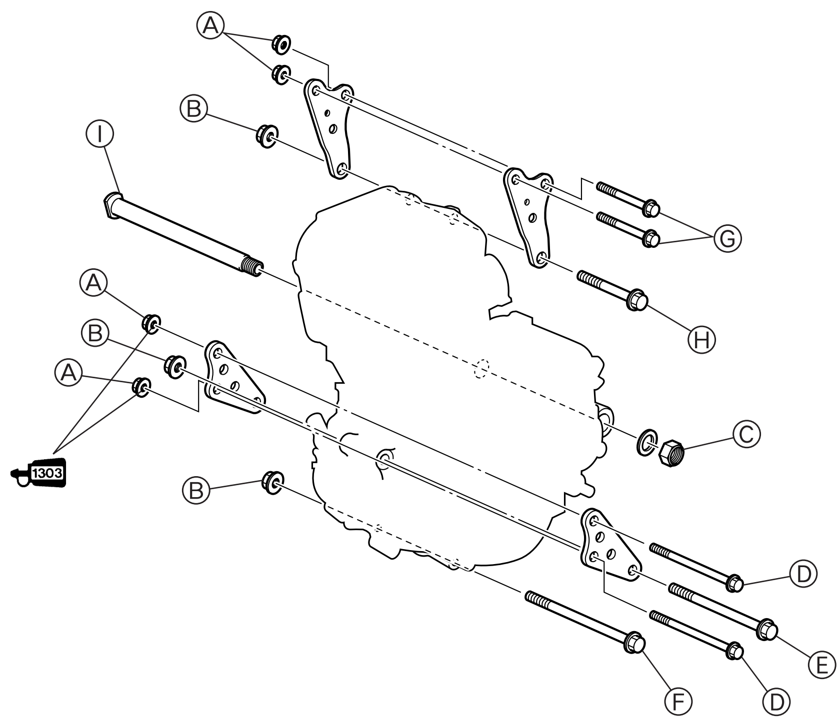
∗ Temporally tighten the nuts at this stage.

∗ The engine mounting nuts are self-locking. Once the nut has been removed, it is no longer of any use.

⚠ CAUTION

Replace the engine mounting nuts with new ones.

- Hold the bolthead with a wrench, and then tighten the engine mounting nuts to the specified torque.



LENGTH

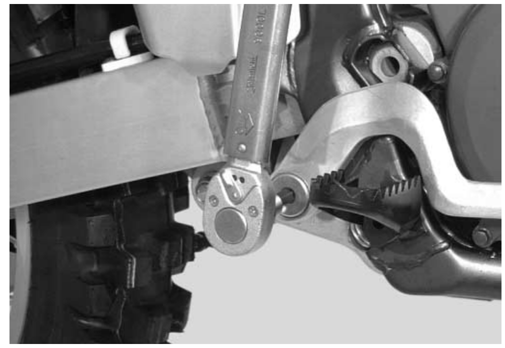
Bolt Ⓓ	90 mm (3.5 in)
Bolt Ⓔ	100 mm (3.9 in)
Bolt Ⓕ	115 mm (4.5 in)
Bolt Ⓖ	50 mm (2.0 in)
Bolt Ⓗ	50 mm (2.0 in)
Bolt Ⓘ	245 mm (9.6 in)

ITEM	N·m	kgf-m	lb-ft
Ⓐ	40	4.0	29.0
Ⓑ	66	6.6	47.5
Ⓒ	77	7.7	55.5

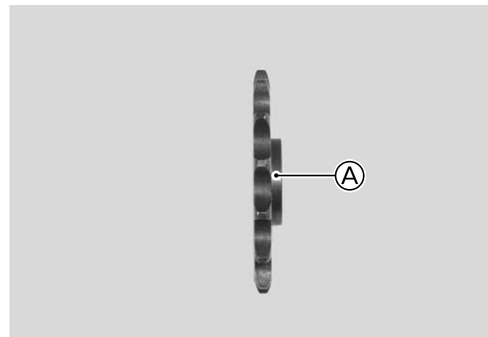
- Tighten the brake pedal bolt to the specified torque.

Brake pedal bolt: 29 N·m (2.9 kgf-m, 21.0 lb-ft)

NOTE:
After installing the brake pedal, install the new cotter pins into the brake pedal bolt and pin.



- Install the engine sprocket, with side Ⓐ of the sprocket facing toward the engine.



- Tighten the engine sprocket nut to the specified torque.

Engine sprocket nut: 110 N·m (11.0 kgf-m, 79.5 lb-ft)

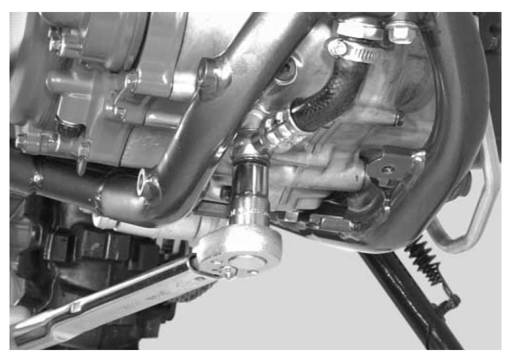
NOTE:
When tightening the engine sprocket nut, depress the brake pedal.

- Bend the washer securely.



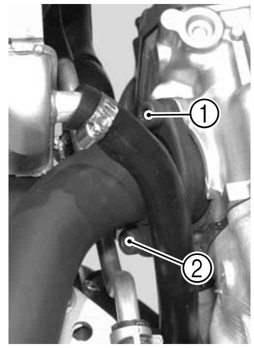
- Tighten the engine oil hose union bolt to the specified torque.

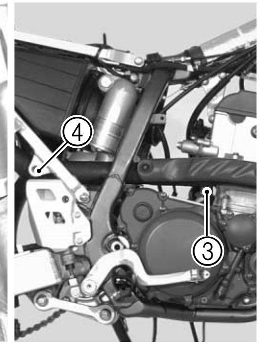
Engine oil hose union bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

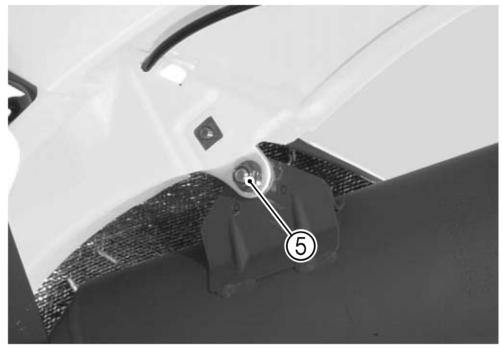


- Tighten the exhaust pipe nut ①, exhaust pipe bolt ②, muffler connection bolt ③, muffler mounting bolt ④ and muffler mounting nut ⑤ to the specified torque.

Exhaust pipe nut and bolt : 23 N·m (2.3 kgf-m, 16.5 lb-ft)
Muffler connection bolt: 20 N·m (2.0 kgf-m, 14.5 lb-ft)
Muffler mounting nut and bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)







- Apply THREAD LOCK SUPER “1303” to the kick lever bolt, and then tighten it. (DR-Z400)

99000-32030: THREAD LOCK SUPER “1303”



- Pour 1.9 L (2.0 US qt, 1.7 Imp qt) of an API service classified SF or SG engine oil that has a viscosity rating of SAE 10W-40, into the oil filler hole, located in the frame, after overhauling it.
- Start the engine and allow it to run for about three minutes at idle speed.
- Turn off the engine and wait about three minutes, and then check the oil level on the dipstick.



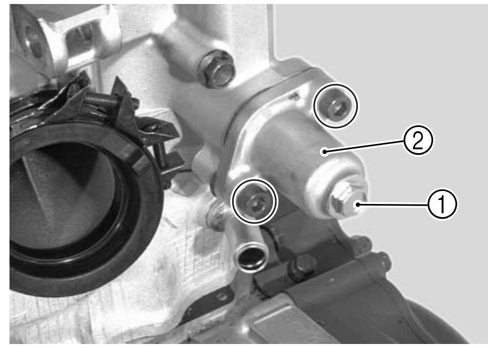
DATA **Engine oil capacity**

Oil change:	**1.7 L (1.8 US qt, 1.5 Imp qt)**
Oil and filter change:	**1.8 L (1.9 US qt, 1.6 Imp qt)**
Engine overhaul:	**1.9 L (2.0 US qt, 1.7 Imp qt)**

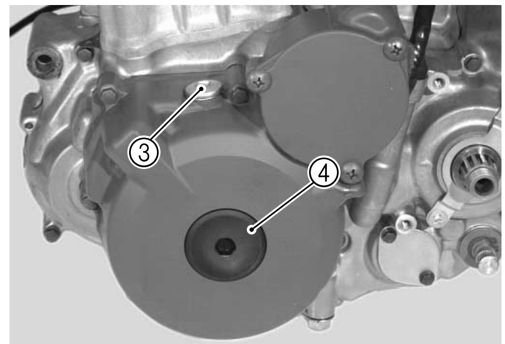
- Adjust the following items to specification.
  - ∗ Throttle cable play .... ☞ 2-13
  - ∗ Engine idle speed .... ☞ 2-14
  - ∗ Brake pedal .... ☞ 2-18

ENGINE DISASSEMBLY

- Remove the cap bolt ① and cam chain tension adjuster ②.

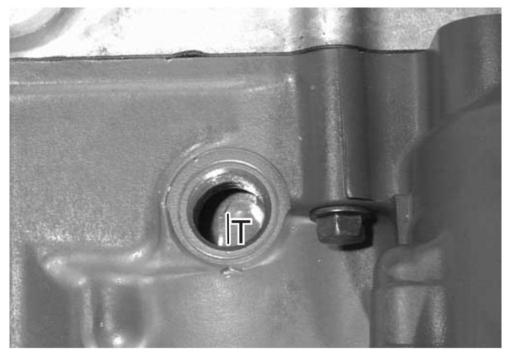


- Remove the top-dead-center (TDC) plug ③ and generator cover cap ④.

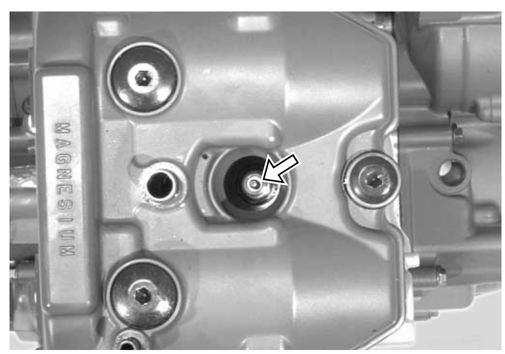


- Turn the generator rotor until the "T" line on the generator rotor is aligned with the center of the hole in the generator cover.

NOTE:
When removing the cylinder head cover, the piston must be at TDC of the compression stroke.



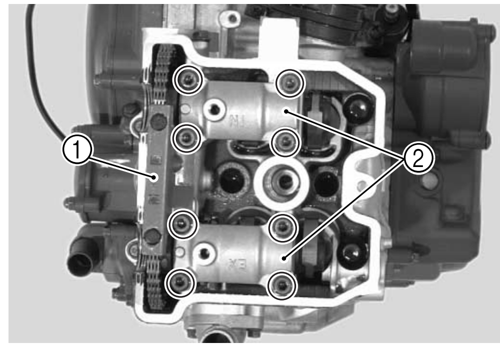
- Remove the spark plug.



- Remove the cylinder head cover bolts in diagonal stages, and then remove the cylinder head cover.

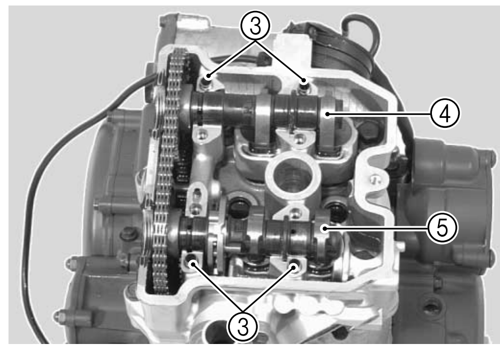


- Remove the cam chain guide ① and camshaft journal holders ②.

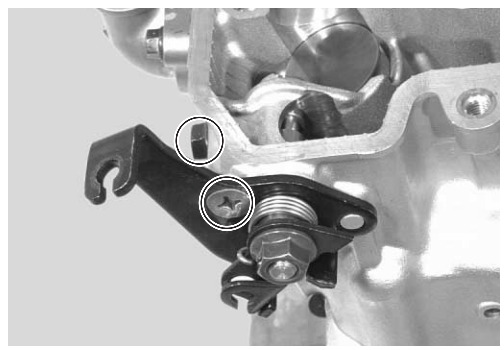


- Remove the dowel pins ③, intake camshaft ④ and exhaust camshaft ⑤.

NOTE:
Do not drop the dowel pins into the crankcase.

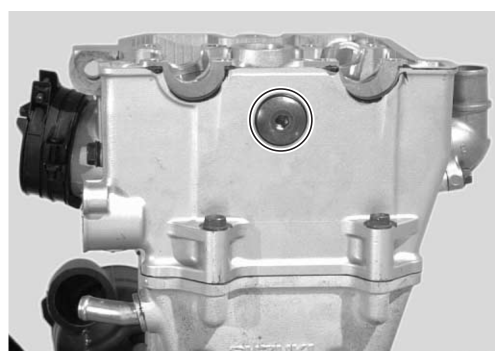


- Remove the decompression lever assembly. (DR-Z400)



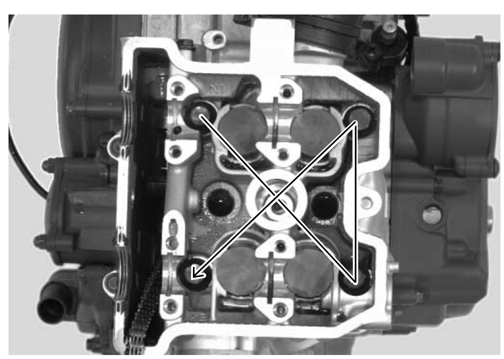
- Remove the cylinder head side bolt.

NOTE:
Do not drop the cam chain into the crankcase.



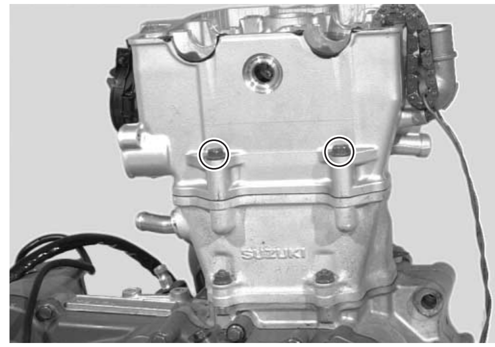
- Remove the four cylinder head bolts in diagonal stages.

NOTE:
Before loosening the cylinder head bolts, loosen the cylinder head bolts (6 mm) and cylinder base nuts.

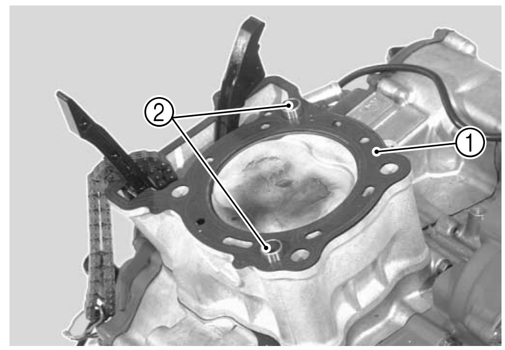


- Remove the cylinder head bolts, and then remove the cylinder head.

NOTE:
If the cylinder head does not come off easily, lightly tap it using a plastic mallet.

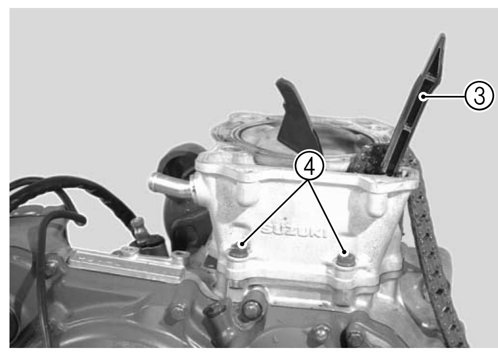


- Remove the cylinder head gasket ① and dowel pins ②.

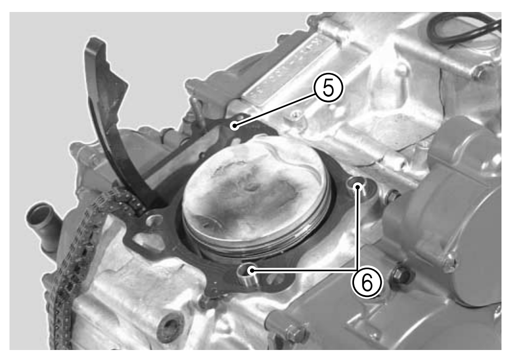


- Remove the cam chain guide ③.
- Remove the cylinder base nuts ④, and then remove the cylinder.

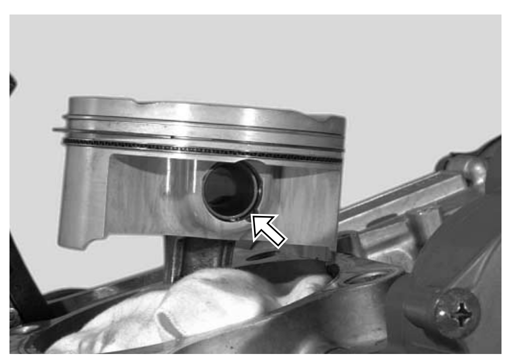
NOTE:
If the cylinder does not come off easily, lightly tap it using a plastic mallet.



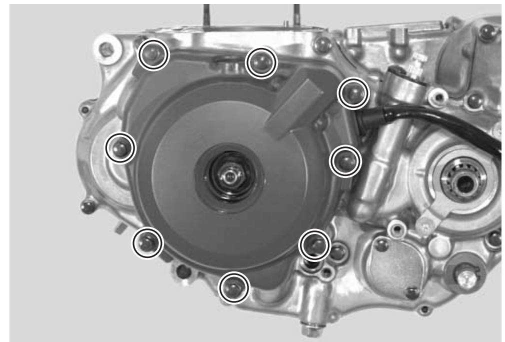
- Remove the cylinder gasket ⑤ and dowel pins ⑥.



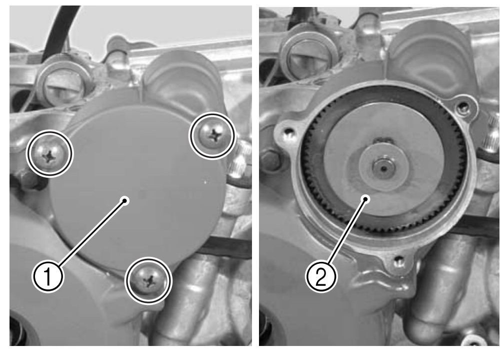
- Place a clean rag over the cylinder base to prevent the piston pin circlip from dropping into the crankcase.
- Remove the piston pin circlip.
- Draw out the piston pin and remove the piston.



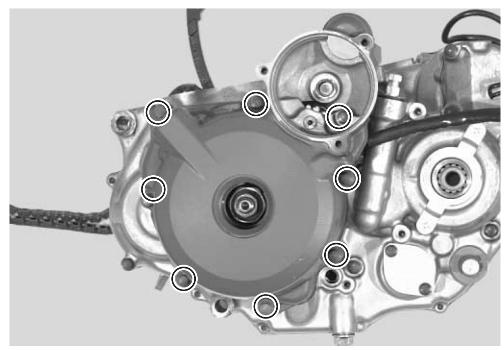
- Remove the generator rotor cover. (DR-Z400)



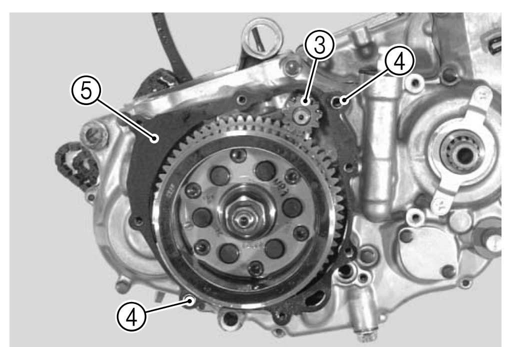
- Remove the starter drive gear cover ① and starter drive gear ②. (DR-Z400E)



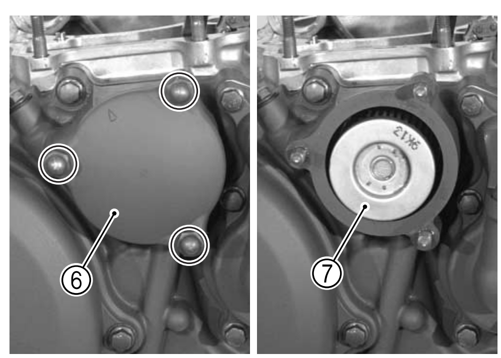
- Remove the generator rotor cover. (DR-Z400E)



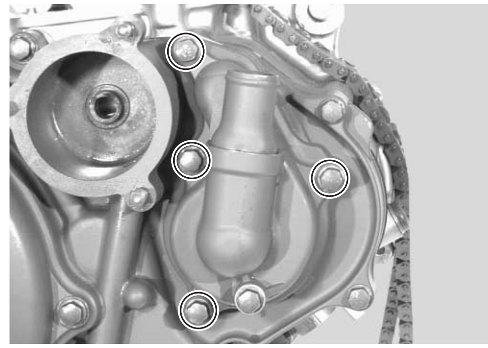
- Remove the starter driven gear ③, dowel pins ④, and gasket ⑤.



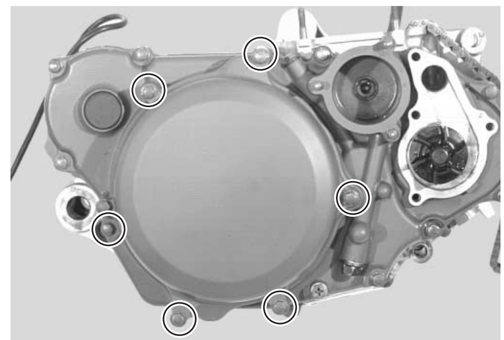
- Remove the oil filter cap ⑥ and oil filter ⑦.



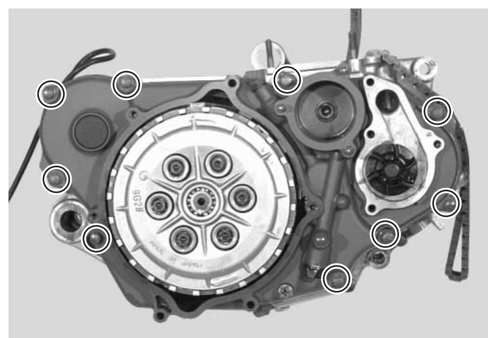
- Remove the water pump cover.



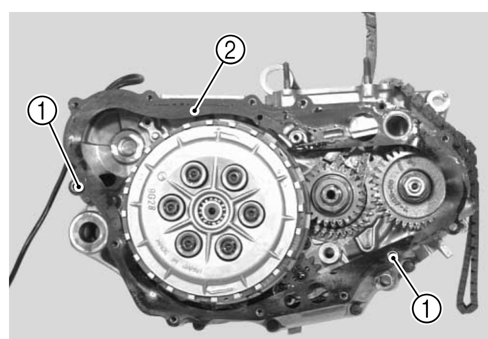
- Remove the clutch cover.



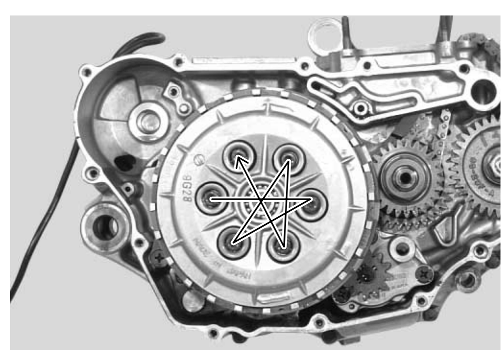
- Remove the right crankcase cover.



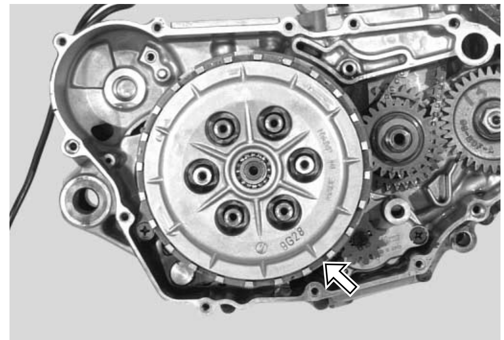
- Remove the dowel pins ① and gasket ②.



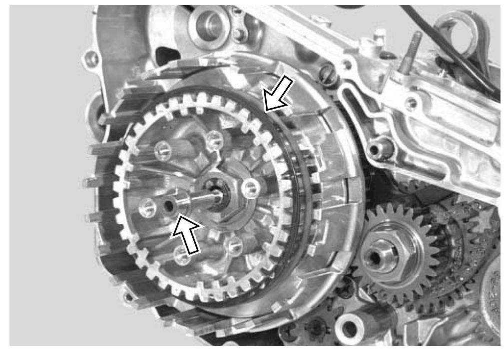
- Loosen the clutch spring set bolts working in diagonal stages, and then remove them when they are fully loosened.



- Remove the clutch pressure plate, clutch drive plates, and clutch driven plates.



- Remove the push rod, spring washer, and spring washer seat.

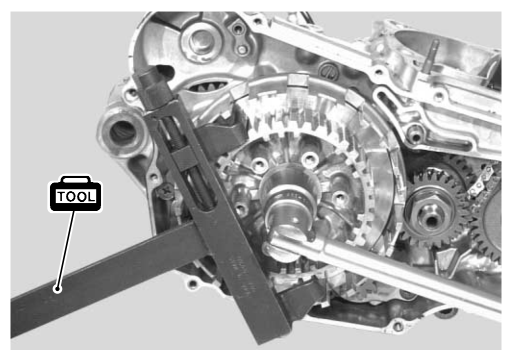


- Flatten the clutch sleeve hub washer.

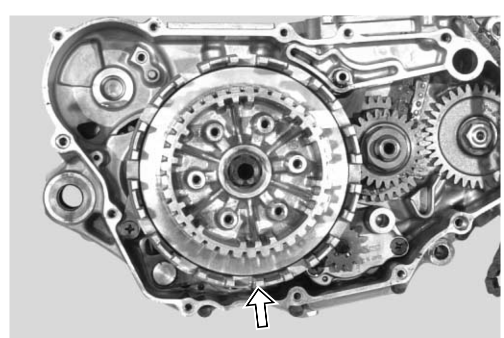


- Hold the clutch sleeve hub using the special tool, and then remove the clutch sleeve hub nut.

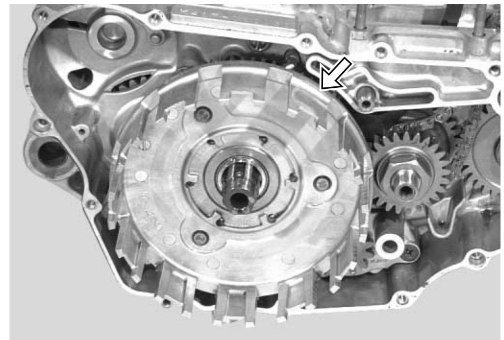
TOOL **09920-53740: Clutch sleeve hub holder**



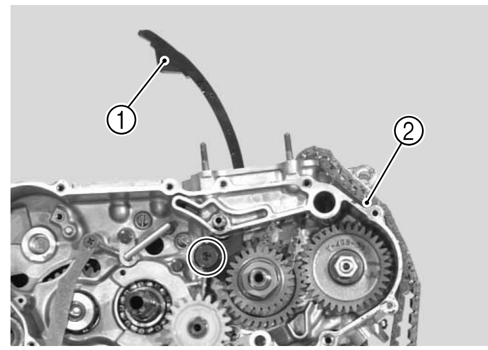
- Remove the clutch sleeve hub and washer.



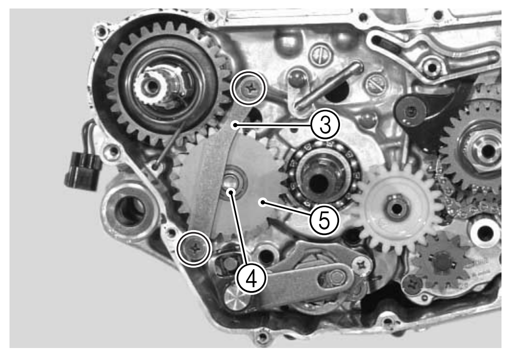
- Remove the primary driven gear assembly and collar.



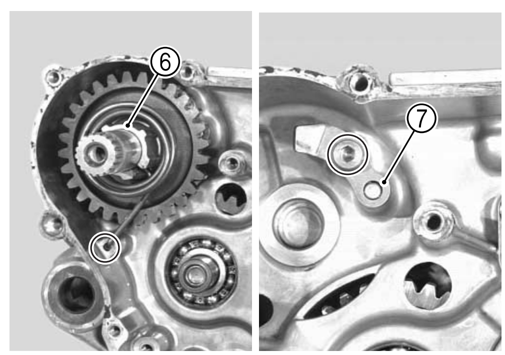
- Remove the cam chain tensioner ① and cam chain ②.



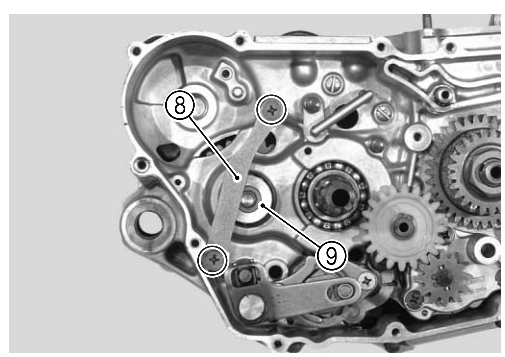
- Remove the retainer ③, spacer ④ and kick starter driven gear ⑤. (DR-Z400)



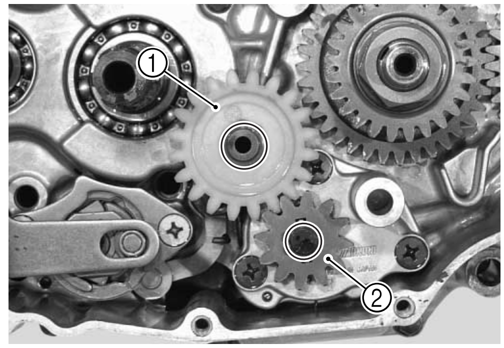
- Remove the kick starter assembly ⑥. (DR-Z400)
- Remove the kick starter guide ⑦. (DR-Z400)



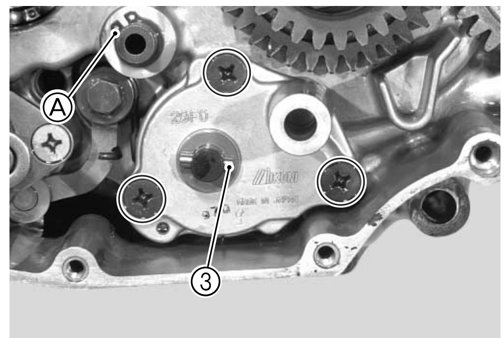
- Remove the retainer ⑧ and spacer ⑨. (DR-Z400E)



- Remove the oil pump idle gear ① and oil pump driven gear ②.



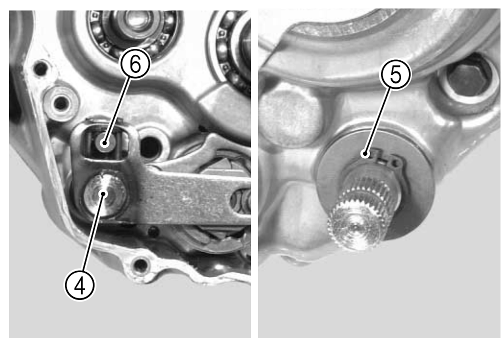
- Remove the pin ③ and oil pump assembly.



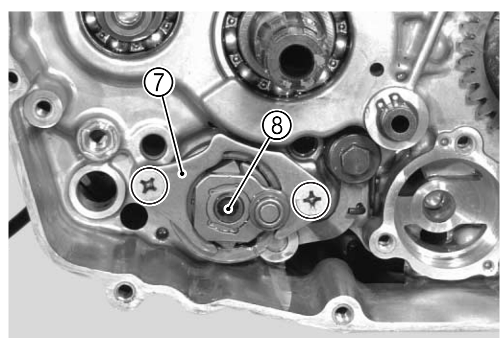
⚠ CAUTION

Do not remove the circrip Ⓐ, before separating the crankase to prevent the oil pump idle gear shaft from dropping into the crankcase.

- Remove the gearshift shaft ④ by removing the circlip ⑤.
- Remove the gearshift arm stopper ⑥.



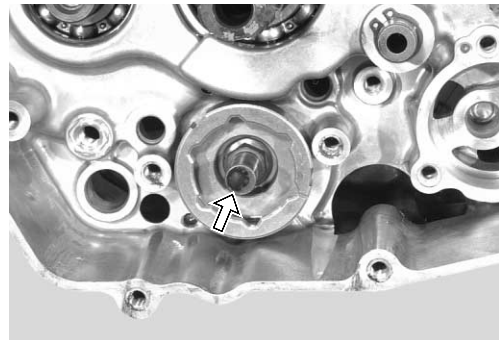
- Remove the gearshift pawl lifter ⑦ and gearshift cam driven gear ⑧.



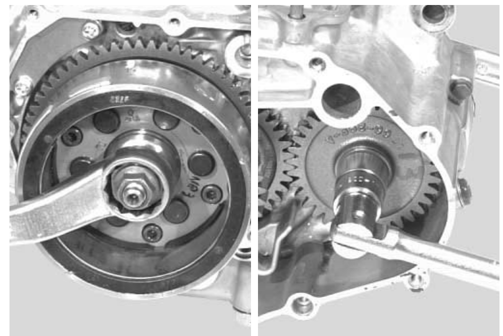
- Remove the gearshift cam stopper arm.



- Remove the gearshift cam driven gear bolt.



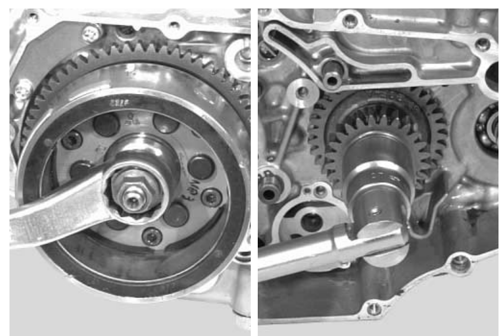
- Hold the generator rotor using the special tool (DR-Z400) or a 26-mm offset wrench (DR-Z400E), and then remove the balancer driven gear nut.



TOOL **09930-44913: Rotor holder**

- Remove the washer, balancer driven gear, and key.

- Hold the generator rotor using the special tool (DR-Z400) or a 26-mm offset wrench (DR-Z400E), and then remove the primary drive gear nut.



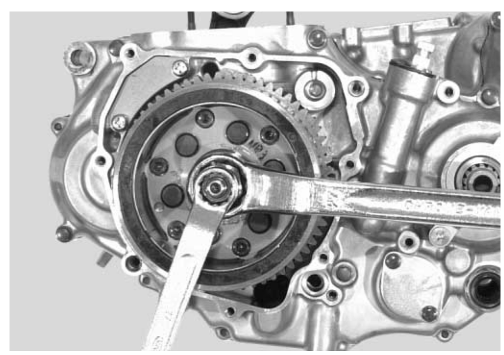
TOOL **09930-44913: Rotor holder**

- Remove the washer, primary drive gear, pin, key, and balancer drive gear.

⚠ CAUTION

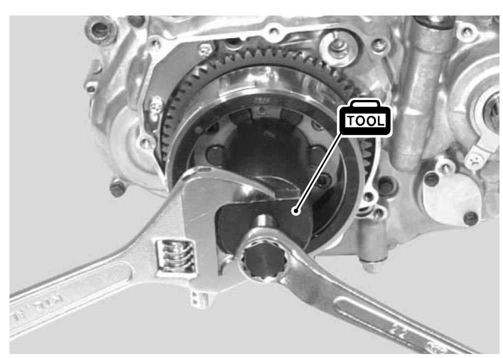
The primary drive gear nut has left-hand threads.

- Hold the generator rotor using the special tool (DR-Z400) or a 26-mm offset wrench (DR-Z400E), and then remove the generator rotor nut.



TOOL **09930-44913: Rotor holder**

- Remove the generator rotor using the special tool.



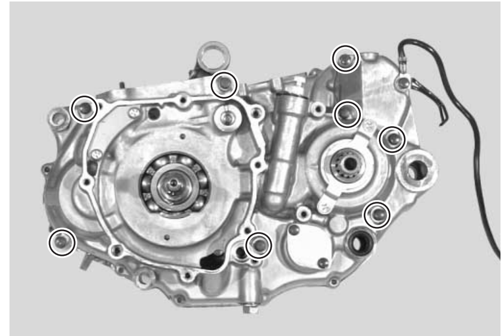
TOOL **09930-31921: Rotor remover**

NOTE:
Do not use the rotor remover attachment to remove the generator rotor, since it will not fit on the end of the crankshaft. Temporarily install the generator rotor nut to the crankshaft, and then remove the generator rotor using the special tool.

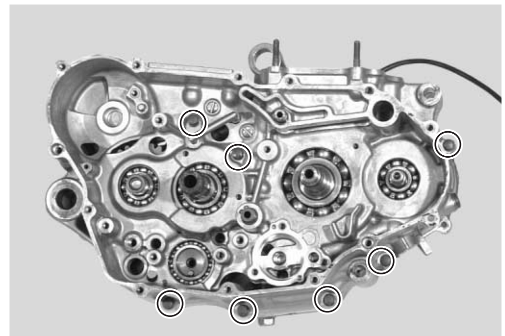
⚠ CAUTION

Do not hit the generator rotor with a hammer, otherwise the rotor may be damaged.

- Remove the left crankcase securing bolts.



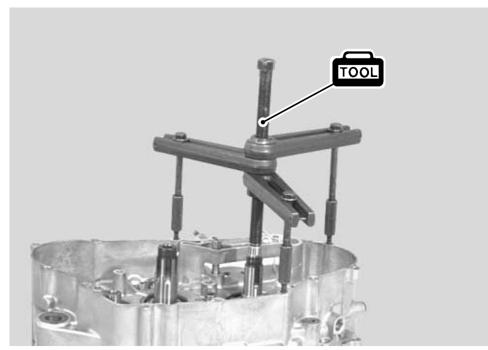
- Remove the right crankcase securing bolts.



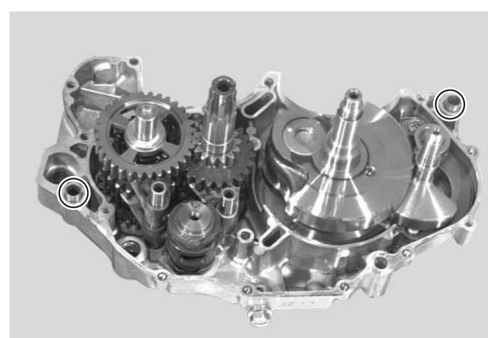
- Separate the crankcase using the special tool.

TOOL 09920-13120: Crankcase separating tool

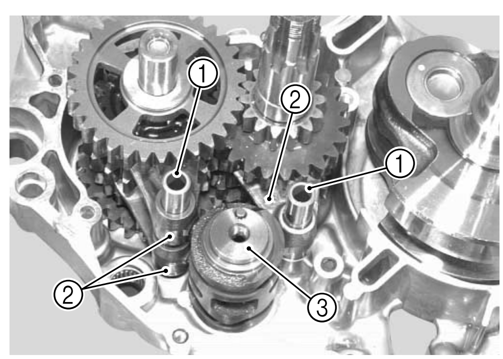
NOTE:
Fit the crankcase separating tool to the right side, so that the tool plate is paralleled with the end face of the crankcase.



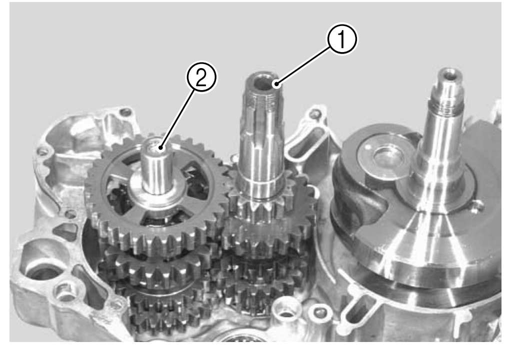
- Remove the dowel pins.



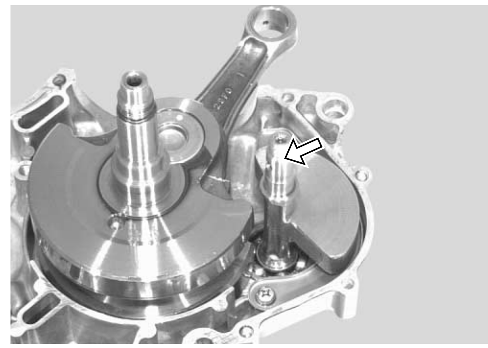
- Remove the gear shift fork shafts ①, gear shift forks ②, and gear shift cam ③.



- Remove the countershaft assembly ① and driveshaft assembly ②.

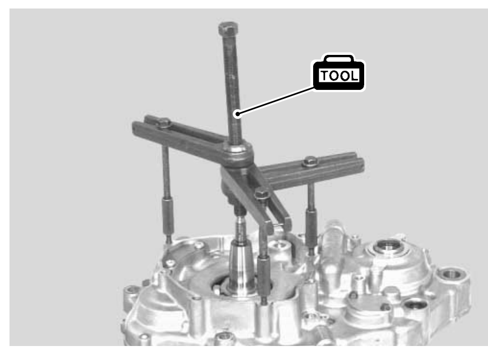


- Remove the balancer shaft.



- Remove the crankshaft from the crankcase using the special tool.

TOOL **09920-13120: Crankcase separating tool**



- Remove the oil sump filter.



ENGINE COMPONENTS INSPECTION AND SERVICE

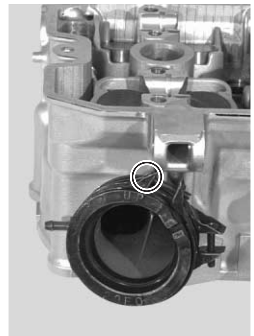
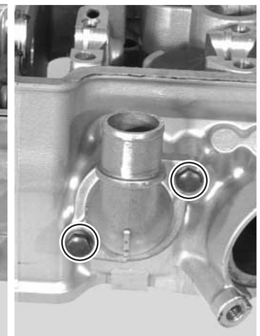
CYLINDER HEAD

DISASSEMBLY

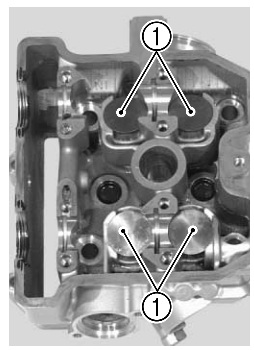
⚠ CAUTION

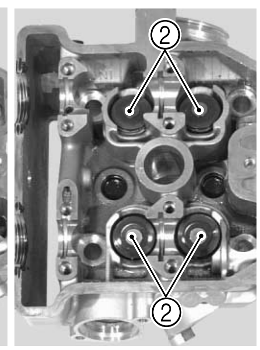
Identify the position of each removed part. Organize the parts in their respective groups (i.e., exhaust or intake) so that they can be installed in their original positions.

- Remove the intake pipe.
- Remove the engine coolant hose housing.

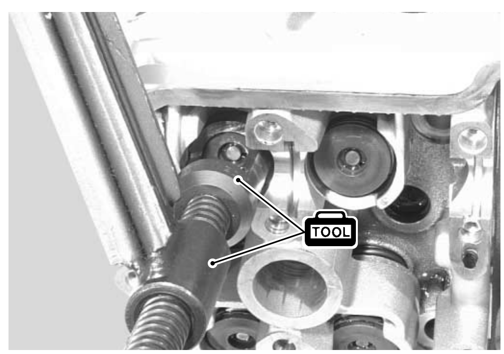
- Remove the tappets ① and shims ② by hand or by using a magnet.



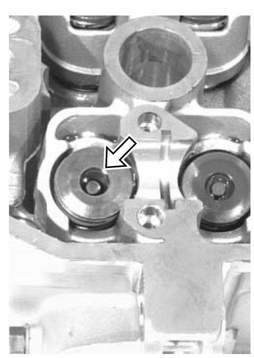
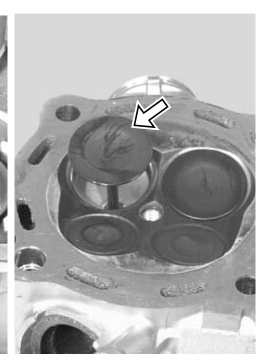


- Compress the valve springs, and then remove the valve cotters from the valve stem using the special tools.

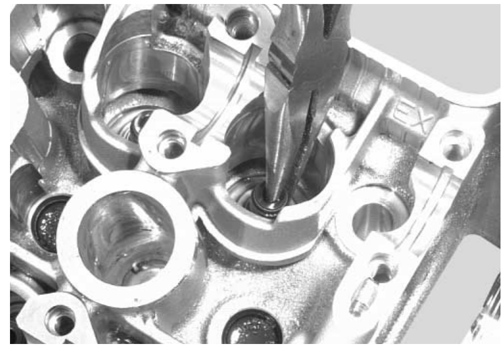
TOOL **09916-14510: Valve spring compressor**
09916-14910: Attachment
09916-84511: Tweezers



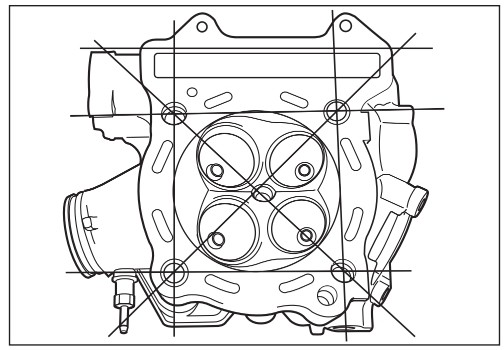
- Remove the valve spring retainer and valve springs.
- Remove the valve from the other side.

- Remove the oil seal with long-nose pliers.
- Remove the valve spring seat.



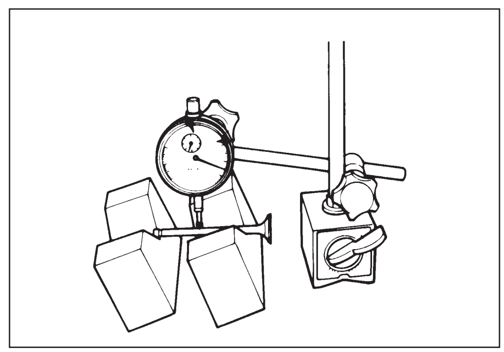
NOTE:
Removal of valves completes ordinary disassembling work. If valve guides have to be removed for replacement after inspecting the related parts, carry out the steps shown in the valve guide servicing.



CYLINDER HEAD DISTORTION
Decarbonize the combustion chamber.
Check the gasket surface of the cylinder head for distortion using a straightedge and thickness gauge. Take clearance readings at several places. If any clearance reading exceeds the service limit, replace the cylinder head with a new one.

TOOL **09900-20803: Thickness gauge**

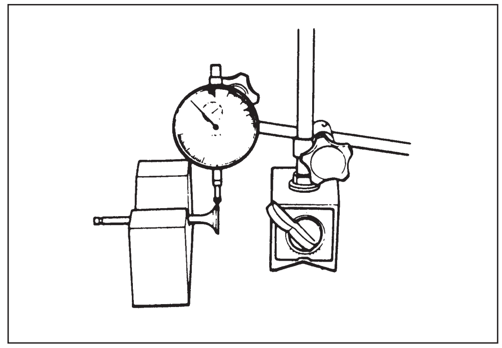
DATA **Cylinder head distortion**
Service Limit: 0.05 mm (0.002 in)



VALVE STEM RUNOUT
Support the valve using V-blocks and measure the valve stem runout using the dial gauge, as shown. If the runout exceeds the service limit, replace the valve with a new one.

TOOL **09900-20606: Dial gauge (1/100 mm)**
09900-20701: Magnetic stand
09900-21304: V-block set (100 mm)

DATA **Valve stem runout**
Service Limit: 0.05 mm (0.002 in)

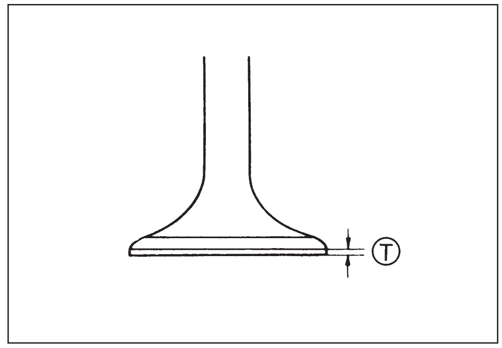


VALVE HEAD RADIAL RUNOUT

Support the valve using a V-block and measure the valve head radial runout using the dial gauge, as shown. If the runout exceeds the service limit, replace the valve with a new one.

TOOL **09900-20606: Dial gauge (1/100 mm)**
09900-20701: Magnetic stand
09900-21304: V-block set (100 mm)

DATA **Valve head radial runout**
Service Limit: 0.03 mm (0.001 in)

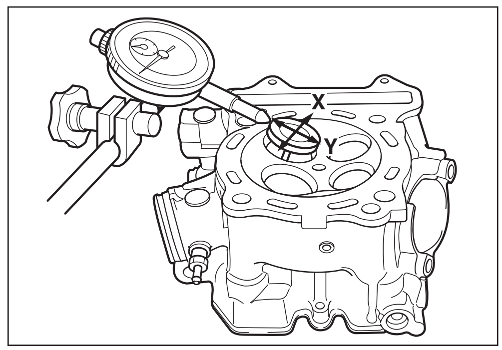


VALVE FACE WEAR

Visually inspect each valve face for wear or damage. If any abnormal wear is found, replace the respective valve with a new one. Measure the valve face thickness Ⓣ. If the valve face thickness is not within the specified value, replace the valve with a new one.

TOOL **09900-20101: Vernier calipers**

DATA **Valve face thickness Ⓣ**
Service Limit: 0.5 mm (0.02 in)



VALVE STEM DEFLECTION

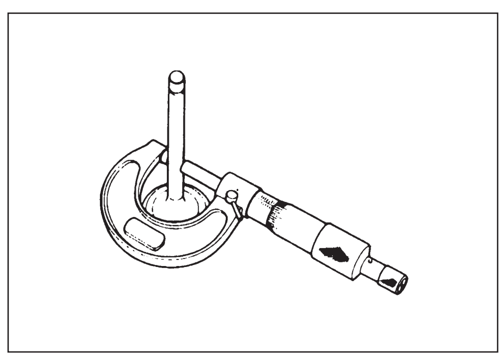
Lift the valve about 10 mm (0.39 in) from the valve seat. Measure the valve stem deflection in two directions, "X" and "Y", perpendicular to each other. Position the dial gauge as shown. If the deflection exceeds the service limit, determine whether the valve or the guide should be replaced with a new one.

TOOL **09900-20606: Dial gauge (1/100 mm)**
09900-20701: Magnetic stand

DATA **Valve stem deflection**
Service Limit: 0.35 mm (0.014 in)

VALVE STEM WEAR

Measure the valve stem outside diameter using the micrometer. If the outside diameter is not within the specified value, replace the valve with a new one. If the valve stem outside diameter is within specification, but the valve stem deflection is not, replace the valve guide with a new one. After replacing the valve or valve guide, check the deflection.

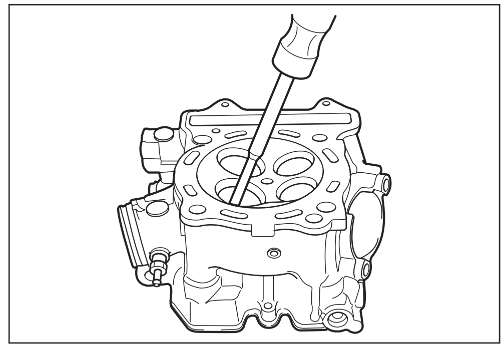


TOOL **09900-20205: Micrometer (0 – 25 mm)**

DATA **Valve stem O.D.**
Standard:
IN: 4.975 – 4.990 mm (0.1959 – 0.1965 in)
EX: 4.955 – 4.970 mm (0.1951 – 0.1957 in)

VALVE GUIDE SERVICING

- Drive the valve guide out toward the camshaft side using the valve guide remover.



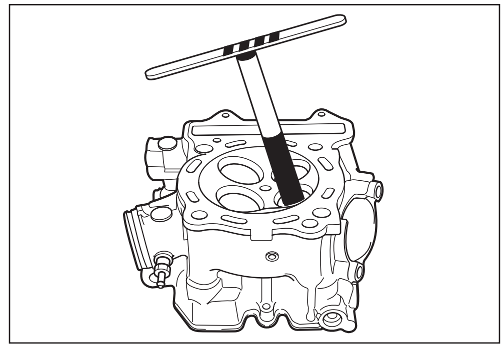
TOOL **09916-44310: Valve guide remover/installer**

NOTE:

∗ *Discard the removed valve guide.*

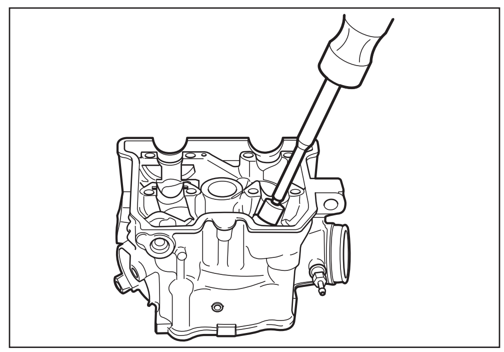
∗ *Only oversized valve guides are available as replacement parts.*

- Refinish the valve guide holes in the cylinder head using the valve guide reamer and handle.



TOOL **09916-34580: Valve guide reamer (10.8 mm)**
09916-34542: Reamer handle

- Oil the stem hole of each valve guide and drive the guide into the guide hole using the valve guide installer and attachment.

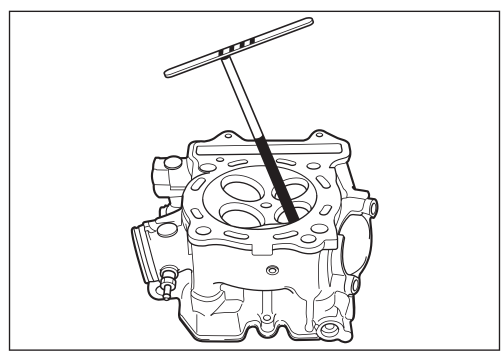


TOOL **09916-44310: Valve guide remover/installer**
09916-53360: Valve guide installer attachment

⚠ CAUTION

Failure to oil the valve guide hole before driving the new guide into place may result in a damaged guide or head.

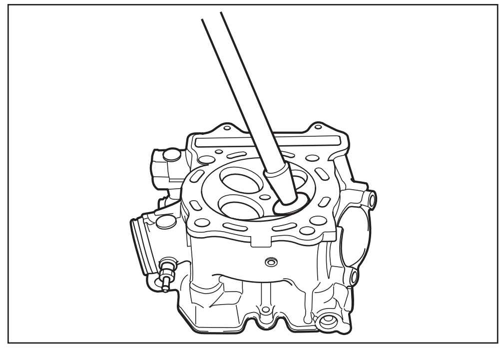
- After fitting the valve guides, refinish their guiding bores with the valve guide reamer. Be sure to clean and oil the guides after reaming.



TOOL **09916-34570: Valve guide reamer (5.0 mm)**
09916-34542: Reamer handle

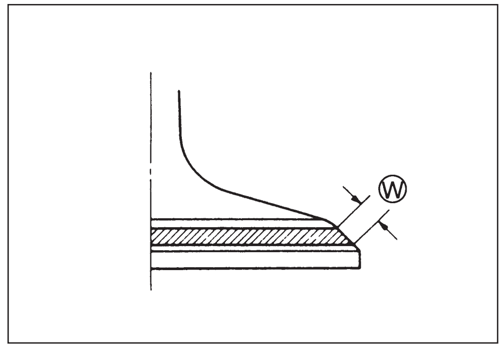
VALVE SEAT WIDTH

- Coat the valve seat uniformly with prussian blue. Install the valve and attach a valve lapper onto it. Tap the coated seat with the valve face in a rotating manner, in order to obtain a clear impression of the seating contact.



TOOL **09916-10911: Valve lapper set**

- The ring-like dye impression left on the valve face must be continuous, without any breaks. In addition, the width of the dye ring, which is the valve seat width, must be within the following specification.

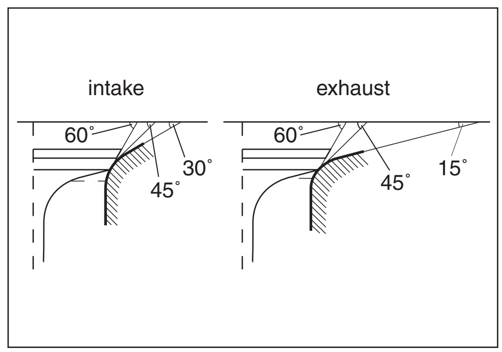


DATA **Valve seat width Ⓦ**
Standard: 0.9 – 1.1 mm (0.035 – 0.043 in)

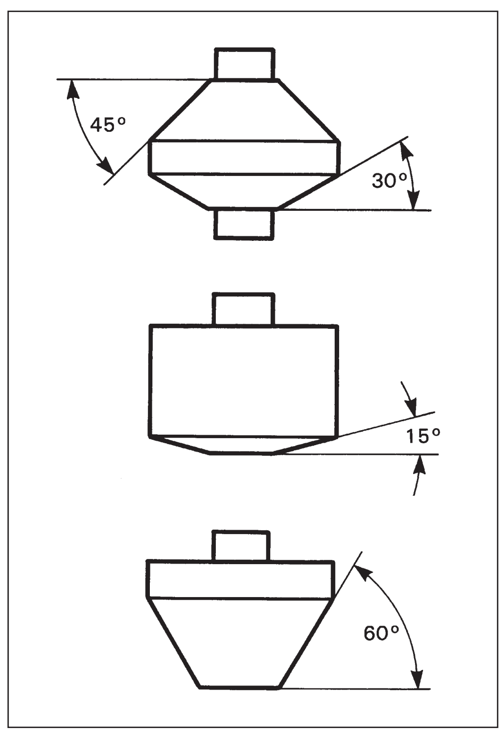
If the valve seat is out of specification, re-cut the seat.

VALVE SEAT SERVICING

The valve seats for both the intake and exhaust valves are machined to three different angles. The seat contact surface is cut at 45°.



	Intake	Exhaust
45°	N-128	N-128
15°	—	N-121
30°	N-128	—
60°	N-114	N-114



For USA

TOOL **Valve seat cutter: N-114, N-121, and N-128**
Solid pilot: N-100-5.0

For the other countries

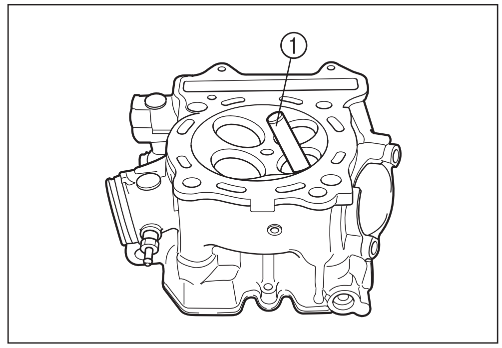
TOOL **09916-21110: Valve seat cutter set**
09916-22420: Cutter N-128
09916-22430: Cutter N-114
09916-20610: Cutter N-121
09916-24311: Solid pilot N-100-5.0

NOTE:
Use the solid pilot N-100-5.0 along with the valve seat cutters N-114, N-121, and N-128.

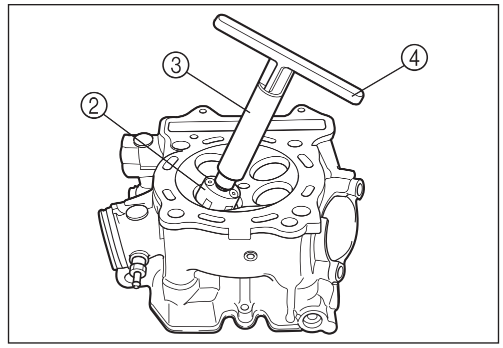
⚠ CAUTION

The valve seat contact area must be inspected after each cut.

- When installing the solid pilot ①, rotate it slightly.

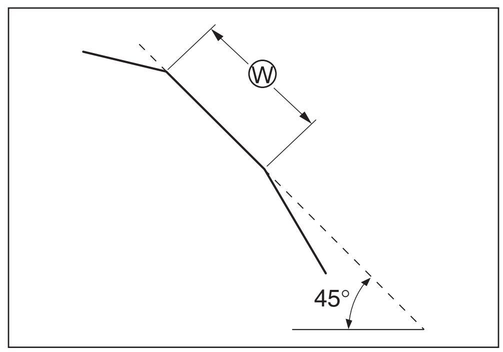


- Seat the pilot snugly. Install the 45° cutter ②, attachment ③, and T-handle ④.



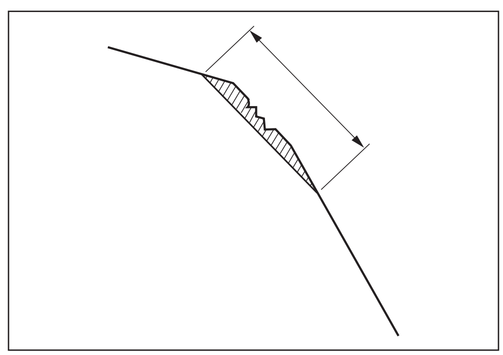
INITIAL SEAT CUT

- Descale and clean up the seat using the 45° cutter. Rotate the cutter one or two turns.
- Measure the valve seat width Ⓦ after every cut.



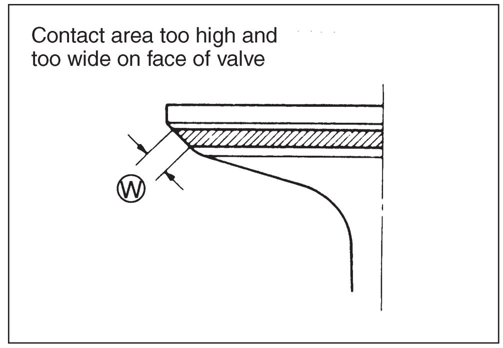
- If the valve seat is pitted or burned, use the 45° cutter to condition the seat some more.

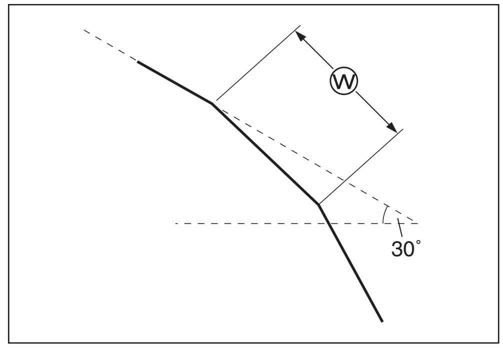
NOTE:
Cut only the minimum amount necessary from the seat to prevent the possibility of the tappet shim replacement.

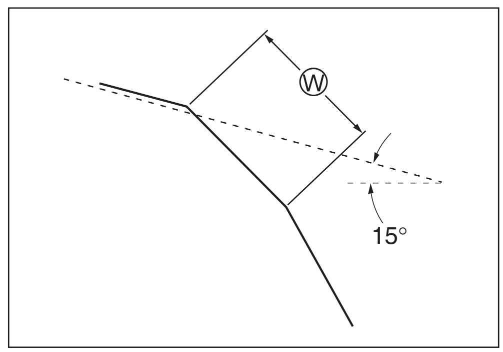


TOP NARROWING CUT

- If the contact area is too high on the valve, or if it is too wide, use the 30° cutter (for the intake side) and the 15° cutter (for the exhaust side) to lower and narrow the contact area.

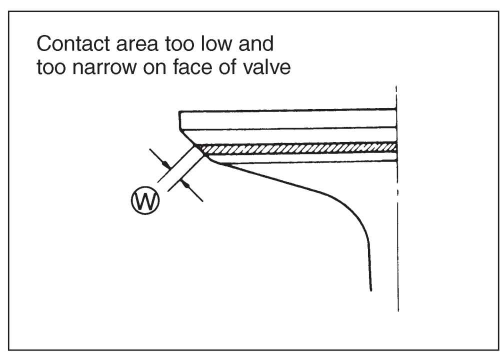


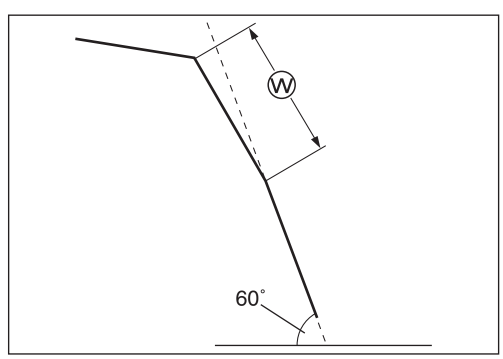




FINAL SEAT CUT

- If the contact area is too low or too narrow, use the 60° cutter to raise and widen the contact area. If the contact area is too high or too wide, use the 15° cutter to lower and narrow it to the correct width.
- After the desired seat position and width is achieved, use the 60° cutter very lightly to clean up any burrs caused by the previous cutting operations.





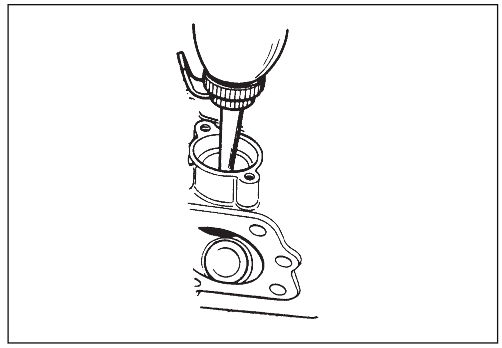
⚠ CAUTION

DO NOT use a lapping compound after the final cut is made. The finished valve seat should have a velvety smooth finish but not a highly polished or shiny one. This will provide a soft surface for the final seating of the valve which will occur during the first few seconds of engine operation.

NOTE:
After servicing the valve seats, be sure to check the tappet clearance after the cylinder head has been installed. *(☞ 2-5 to 2-8)*

VALVE SEAT SEALING CONDITION INSPECTION

With the valve and valve spring assembled, pour a small quantity of gasoline into the intake or exhaust port.
Check that no gasoline leaks through the valve seat. If leakage is found, correct the sealing surface.

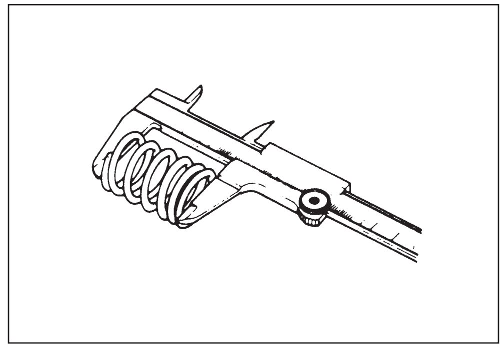


⚠ WARNING

Gasoline is highly flammable and explosive.
Keep heat, sparks, and flames away from gasoline.

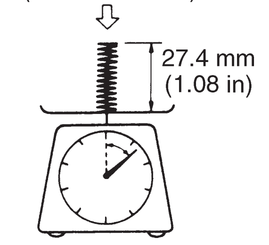
VALVE SPRING

The force of the coil spring keeps the valve seat tight. A weakened spring results in reduced engine power output and accounts for the chattering noise coming from the valve mechanism.
Check the valve springs for proper strength by measuring their free length and also by the force required to compress them. If the spring length is less than the service limit or if the force required to compress the valve spring is not within specification, replace both the inner and outer springs as a set.



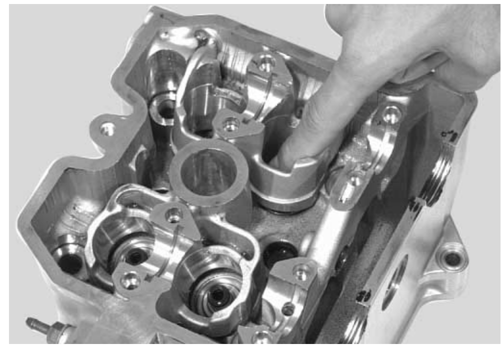
DATA **Valve spring free length (IN & EX)**
Service Limit:
INNER: 32.6 mm (1.28 in)
OUTER:36.3 mm (1.43 in)

DATA **Valve spring tension (IN & EX)**
Standard:
INNER: 5.6 – 6.4 kgf/27.4 mm (12.3 – 14.1 lbs/1.08 in)
OUTER:12.6 – 14.5 kgf/30.9 mm (27.7 – 32.0 lbs/1.22 in)



REASSEMBLY

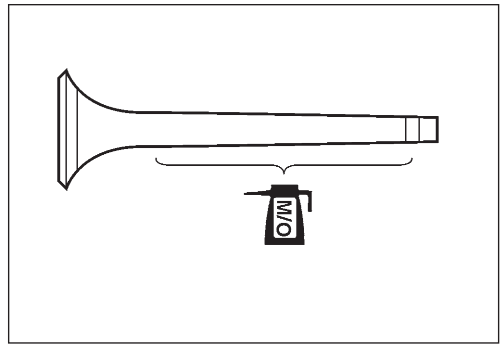
- Install each valve spring seat.
- Apply molybdenum oil solution to each oil seal and press-fit them into position.



⚠ CAUTION

Do not reuse the oil seals.

- Apply molybdenum oil solution to the valve as shown, and then insert them into the valve guides.

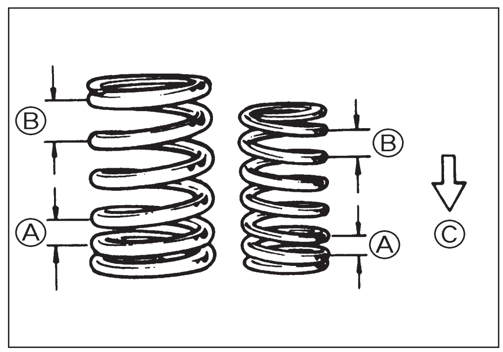


⚠ CAUTION

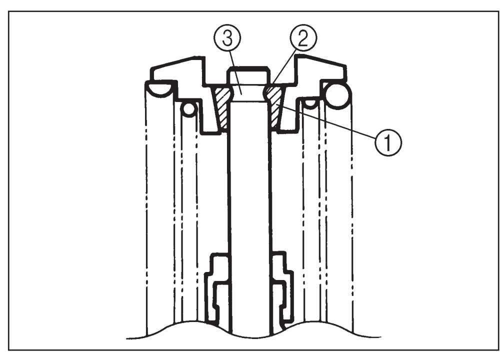
When inserting each valve into the valve guides, make sure not to damage the lip of the oil seal.

- Install the valve spring with the smaller pitch Ⓐ facing the cylinder head.

Ⓑ Larger pitch
Ⓒ Down



- Install the valve spring retainer by pressing down the spring using the valve lifter. Fit the cotter halves to the stem end and release the lifter to allow the cotter ① to wedge between the retainer and the valve stem. Make sure that the rounded lip ② of the cotter fits snugly into the groove ③ in the stem end.

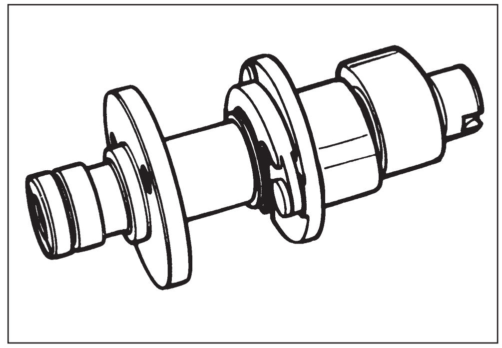


TOOL **09916-14510: Valve spring compressor**
09916-14910: Attachment
09916-84511: Tweezers

⚠ CAUTION

Be sure to install all of the parts in their original positions.

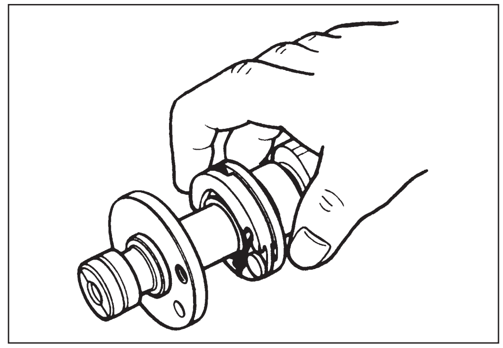
CAMSHAFT/AUTOMATIC DECOMPRESSION ASSEMBLY



⚠ CAUTION

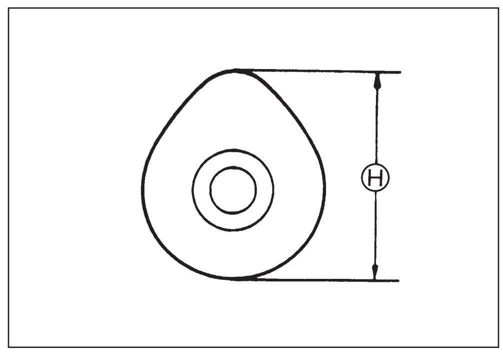
Do not attempt to disassemble the camshaft/automatic decompression assembly. It is not serviceable.

AUTOMATIC DECOMPRESSION



Move the automatic decompression weight by hand to inspect if it is operating smoothly. If the automatic decompression weight does not operate smoothly, replace it with a new one.

CAM WEAR



Worn-down cams are often the cause of mistimed valve operation resulting in reduced power output.
Measure the cam height Ⓗ using the micrometer. If the cams are worn to the service limit, replace the camshaft with new a one.

TOOL **09900-20202: Micrometer (25 – 50 mm)**

DATA **Cam height Ⓗ**
Service Limit:
IN: 36.610 mm (1.4413 in)
EX: 36.580 mm (1.4402 in)

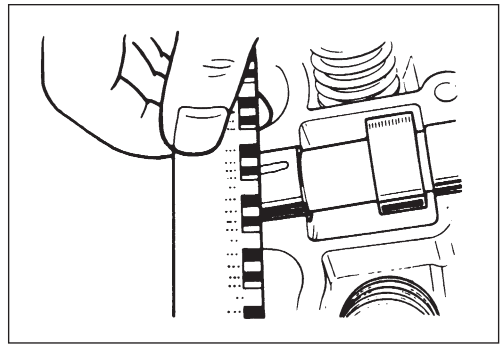
CAMSHAFT JOURNAL WEAR

Measure the oil clearance, with the camshaft installed, using the plastigauge.

TOOL **09900-22301: Plastigauge**
09900-22302: Plastigauge

DATA **Camshaft journal oil clearance (IN & EX)**
Service Limit: 0.150 mm (0.0059 in)

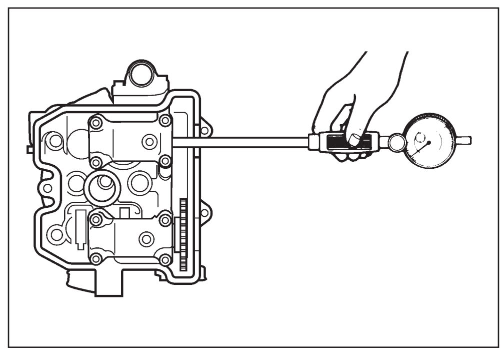
Tighten the camshaft journal holder bolts evenly and in diagonal stages to the specified torque.



Camshaft journal holder bolt:
10 N·m (1.0 kgf-m, 7.0 lb-ft)

NOTE:
Do not rotate the camshaft with the plastigauge in place.

Remove the journal holders and read the width of the compressed plastigauge with the envelope scale. This measurement should be taken at the widest part of the compressed plastigauge.
If the camshaft journal oil clearance exceeds the service limit, measure the inside diameter of the camshaft journal holder and outside diameter of the camshaft journal. Replace the camshaft or the cylinder head and camshaft holder depending upon which one exceeds the specification.

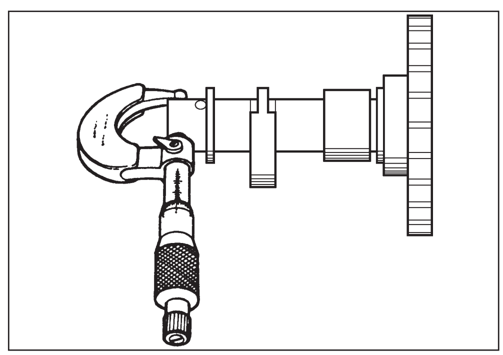


TOOL **09900-22403: Small bore gauge**

DATA **Camshaft journal holder I.D. (IN & EX)**
Standard: 22.012 – 22.025 mm (0.8666 – 0.8671 in)

TOOL **09900-20205: Micrometer (0 – 25 mm)**

DATA **Camshaft journal O.D. (IN & EX)**
Standard: 21.972 – 21.993 mm (0.8653 – 0.8659 in)

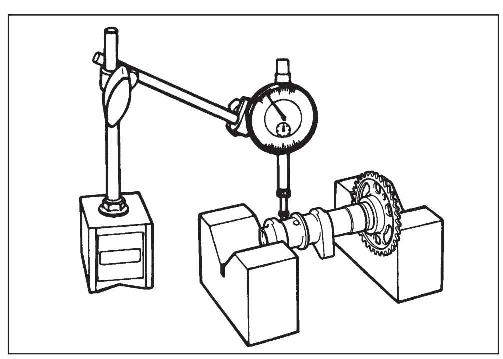


CAMSHAFT RUNOUT

Support the valve using V-blocks and measure the camshaft runout using the dial gauge. If the runout exceeds the service limit, replace the camshaft with a new one.

TOOL **09900-20606: Dial gauge (1/100 mm)**
09900-20701: Magnetic stand
09900-21304: V-block set (100 mm)

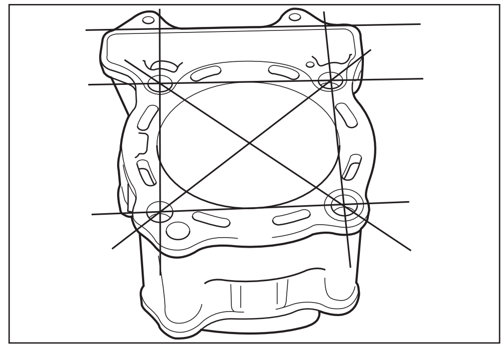
DATA **Camshaft runout**
Service Limit: 0.10 mm (0.004 in)



CYLINDER

CYLINDER DISTORTION

Check the gasket surface of the cylinder block for distortion using a straightedge and thickness gauge. Take clearance readings at several places. If any clearance reading exceeds the service limit, replace the cylinder block with a new one.

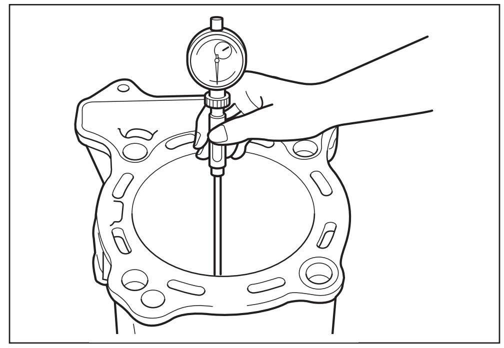


TOOL **09900-20803: Thickness gauge**

DATA **Cylinder distortion**
Service Limit: 0.05 mm (0.002 in)

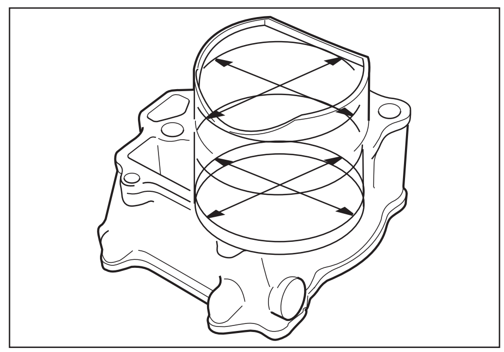
CYLINDER BORE

Inspect the cylinder wall for any scratches, nicks or other damage. Measure the cylinder bore diameter at six places.



09900-20508: Cylinder gauge set

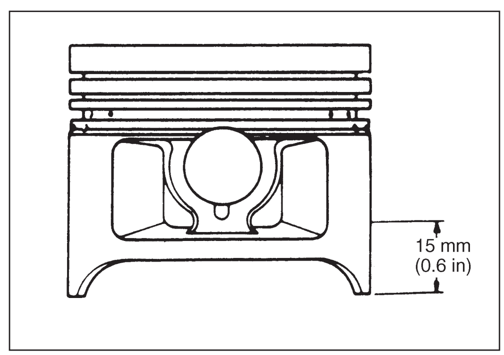
DATA **Cylinder bore**
Standard: 90.000 – 90.015 mm (3.5433 – 3.5439 in)



PISTON AND PISTON RING

PISTON DIAMETER

Measure the piston diameter using the micrometer at 15 mm (0.6 in) from the skirt end.
If the piston diameter is less than the service limit, replace the piston with a new one.

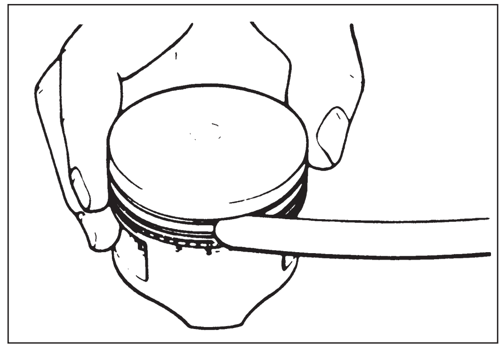


TOOL **09900-20204: Micrometer (75 – 100 mm)**

DATA **Piston diameter**
Service Limit: 89.880 mm (3.5386 in)

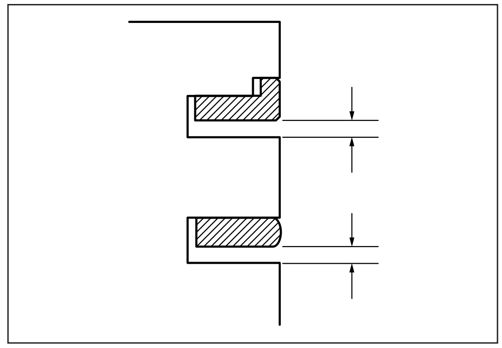
PISTON-RING-TO-GROOVE CLEARANCE

Measure the side clearances of the 1st and 2nd piston rings using the thickness gauge. If any clearance reading exceeds the service limit, replace both the piston and piston rings.



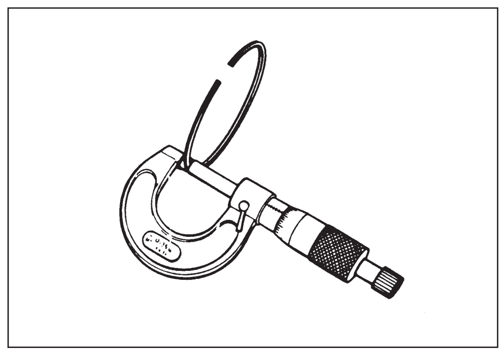
TOOL **09900-20803: Thickness gauge**
09900-20205: Micrometer (0 – 25 mm)

DATA **Piston-ring-to-groove clearance**
Service Limit:
1st: 0.18 mm (0.0071 in)
2nd: 0.15 mm (0.0059 in)



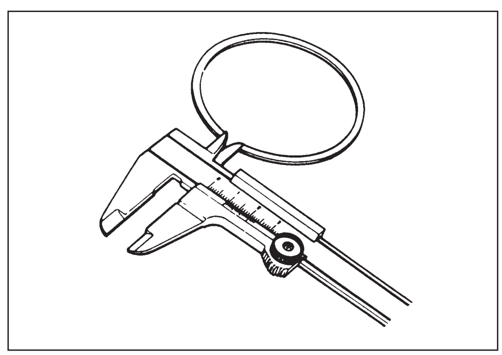
DATA **Piston ring groove width**
Standard:
1st: 0.78 – 0.80 mm (0.0307 – 0.0315 in)
1.30 – 1.32 mm (0.0512 – 0.0520 in)
2nd: 0.81 – 0.83 mm (0.0319 – 0.0327 in)
Oil: 2.01 – 2.03 mm (0.0791 – 0.0799 in)

DATA **Piston ring thickness**
Standard:
1st: 0.71 – 0.76 mm (0.0280 – 0.0299 in)
1.08 – 1.10 mm (0.0425 – 0.0433 in)
2nd: 0.77 – 0.79 mm (0.0303 – 0.0311 in)



PISTON RING FREE END GAP AND PISTON RING END GAP

Measure the piston ring free end gap using the vernier calipers, first, and then fit the piston ring squarely into the cylinder and measure the piston ring end gap using the thickness gauge.
If any measurement exceeds the service limit, replace the piston ring with a new one.

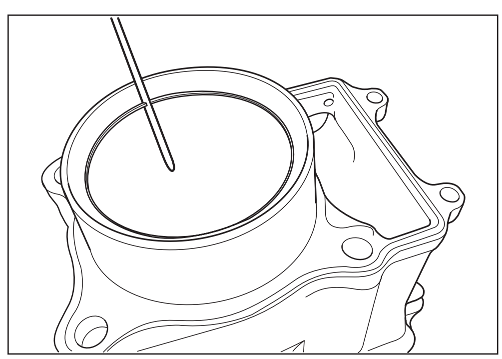


TOOL **09900-20101: Vernier calipers**

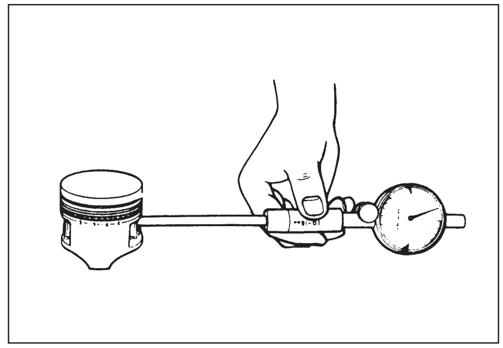
DATA **Piston ring free end gap**
Service Limit:
1st: 5.5 mm (0.22 in)
2nd: 9.2 mm (0.36 in)

TOOL **09900-20803: Thickness gauge**

DATA **Piston ring end gap**
Service Limit:
1st: 0.50 mm (0.020 in)
2nd: 0.50 mm (0.020 in)



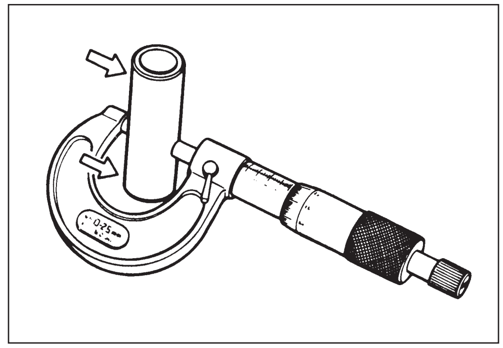
PISTON PIN AND PIN BORE



Measure the piston pin bore diameter using the small bore gauge. If the diameter exceeds the service limit, replace the piston with a new one.

TOOL **09900-20602: Dial gauge (1/1000 mm)**
09900-22403: Small bore gauge (18 – 35 mm)

DATA **Piston pin bore**
Service Limit: 20.030 mm (0.7886 in)



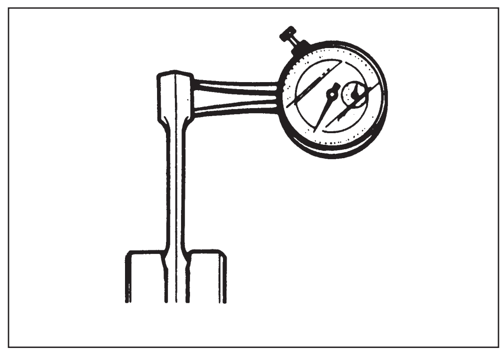
Measure the piston pin outside diameter at three positions using the micrometer. If any measurement exceeds the service limit, replace the piston pin with a new one.

TOOL **09900-20205: Micrometer (0 – 25 mm)**

DATA **Piston pin O.D.**
Service Limit: 19.980 mm (0.7866 in)

CONROD

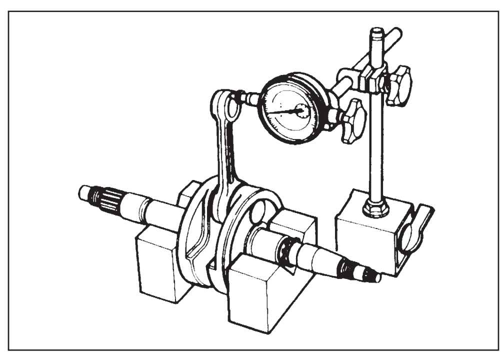
CONROD SMALL END I.D.



Measure the conrod small end inside diameter using the small bore gauge.
If the conrod small end inside diameter exceeds the service limit, replace the conrod with a new one.

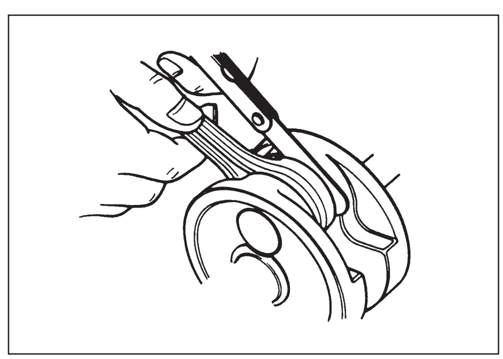
TOOL **09900-20605: Dial calipers**
DATA **Conrod small end I.D.**
Service Limit: 20.040 mm (0.7890 in)

CONROD DEFLECTION AND BIG END SIDE CLEARANCE



Wear on the big end of the conrod can be estimated by checking the movement of the small end of the rod. This method can also be used to check the extent of wear on the parts of the conrod's big end.

TOOL **09900-20701: Magnetic stand**
09900-20606: Dial gauge (1/100 mm)
09900-21304: V-block set (100 mm)
DATA **Conrod deflection**
Service Limit: 3.0 mm (0.12 in)



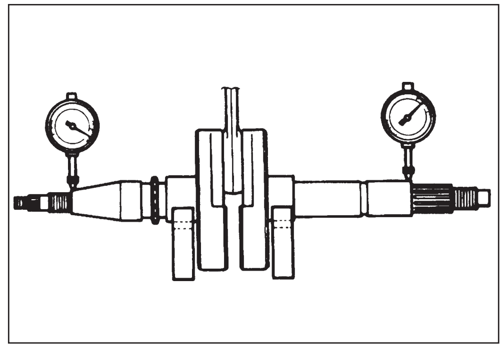
Push the big end of the conrod to one side and measure the side clearance using a thickness gauge. If the clearance exceeds the service limit, replace the crankshaft assembly with a new one or bring the deflection and the side clearance within the service limit by replacing the worn parts (conrod, big end bearing, crank pin, etc.) with new ones.

TOOL **09900-20803: Thickness gauge**
DATA **Big end side clearance**
Service Limit: 1.00 mm (0.039 in)

CRANKSHAFT

CRANKSHAFT RUNOUT

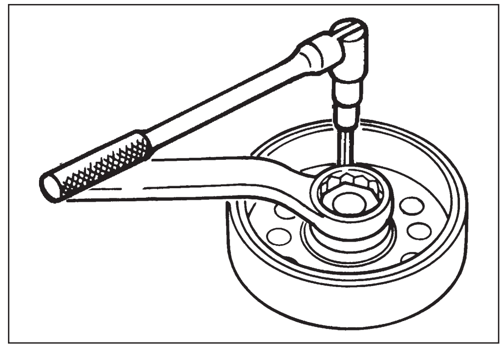
Support the crankshaft using V-blocks and measure the crankshaft runout using the dial gauge, as shown. If the runout exceeds the service limit, replace the crankshaft with a new one.



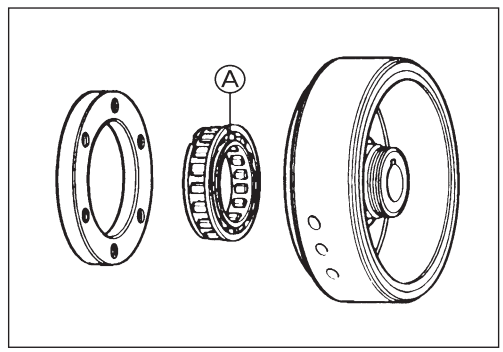
TOOL **09900-20606: Dial gauge (1/100 mm)**
09900-20701: Magnetic stand
09910-21304: V-block set (100 mm)

DATA **Crankshaft runout**
Service Limit: 0.08 mm (0.003 in)

STARTER CLUTCH (DR-Z400E)



- Hold the rotor with a 26-mm offset wrench and remove the hexagon bolts.



- Install the starter clutch in the proper direction as shown.

NOTE:
When installing the starter clutch onto the rotor, make sure that the notch Ⓐ in the bearing faces to the rotor.

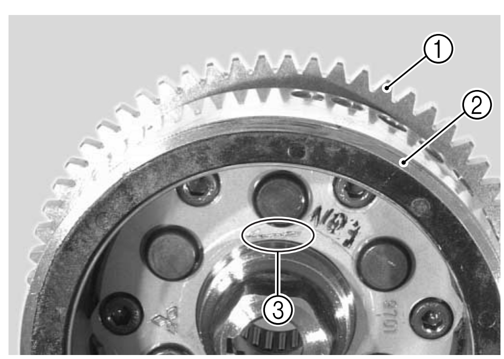
- Apply engine oil to the starter clutch.



- Apply THREAD LOCK SUPER “1303” to the hexagon bolts, and then tighten them to the specified torque while holding the rotor and using a 26-mm offset wrench.

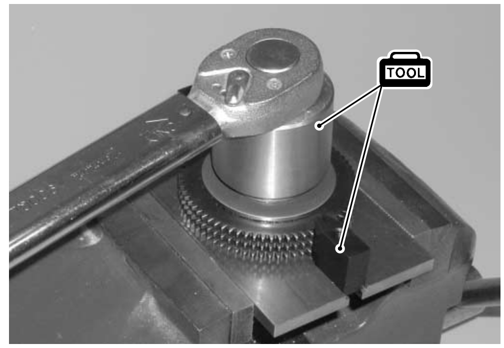
1303 **99000-32030: THREAD LOCK SUPER “1303”**

Starter clutch bolt: 26 N·m (2.6 kgf-m, 19.0 lb-ft)



- Install the starter gear ① to the starter clutch.
- Check that the rotor ② turns in the direction of the arrow ③ on the rotor while holding the starter gear, and that the rotor never turns in the opposite direction of the arrow.

STARTER TORQUE LIMITER (DR-Z400E)



⚠ CAUTION

Do not attempt to disassemble the starter torque limiter. It is unserviceable.

Check the slip torque of the starter torque limiter using the special tools and vise as shown, if the slip torque is not within the specified torque, replace the starter torque limiter with a new one.

TOOL **09930-73170: Starter torque limiter holder**
09930-73180: Starter torque limiter socket

Slip torque:
30 – 55 N·m (3.0 – 5.5 kgf-m, 21.5 – 40.0 lb-ft)

OIL PUMP

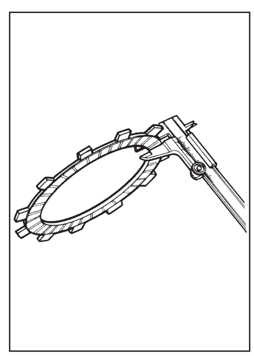


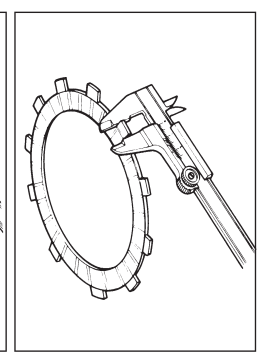
⚠ CAUTION

The oil pump case securing screw is applied with SUZUKI THREAD LOCK SUPER "1303". If an attempt is made to overhaul the oil pump assembly, the screw may be damaged. Only the oil pump unit is available as a replacement.

1303 **99000-32030: THREAD LOCK SUPER "1303"**

CLUTCH





CLUTCH DRIVE PLATES

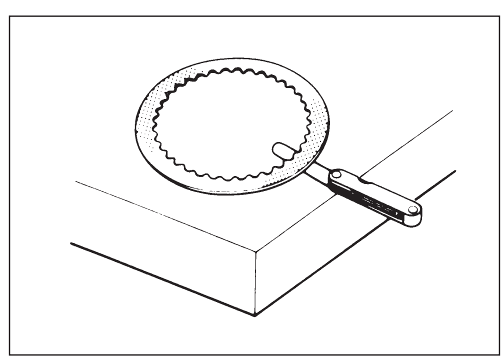
Measure the thickness of the clutch drive plates using vernier calipers. If a clutch drive plate is not within the service limit, replace the clutch plates as a set.

TOOL **09900-20101: Vernier calipers**

DATA **Drive plate thickness (No.1 & No.2)**
Service Limit: 2.62 mm (0.103 in)

DATA **Drive plate claw width (No.1 & No.2)**
Service Limit: 13.2 mm (0.520 in)

CLUTCH DRIVEN PLATES



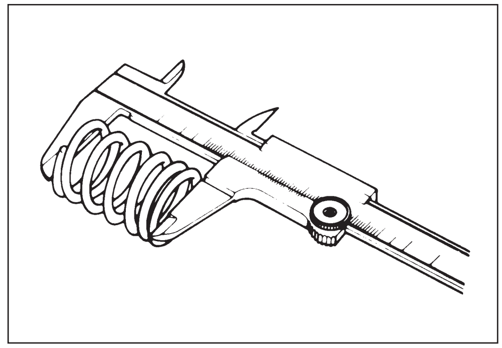
Measure each clutch driven plate for distortion using the thickness gauge. If a clutch driven plate is not within the service limit, replace the clutch plates as a set.

TOOL **09900-20803: Thickness gauge**

DATA **Driven plate distortion**
Service Limit: 0.10 mm (0.004 in)

CLUTCH SPRING FREE LENGTH

Measure the free length of each clutch spring using vernier calipers. If any spring is not within the service limit, replace all of the springs with new ones.



TOOL **09900-20101: Vernier calipers**

DATA **Clutch spring free length**
Service Limit: 49.9 mm (1.96 in)

GEARSHIFT FORK AND GEAR

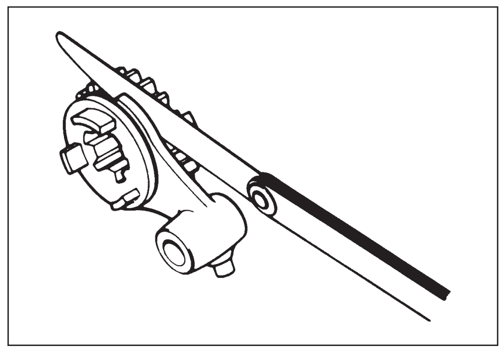
GEARSHIFT-FORK-TO-GEARSHIFT-FORK GROOVE CLEARANCE

Clearance for each gearshift fork plays an important role in the smoothness and positiveness of the shifting process.

Measure the gearshift fork clearance in the groove of its respective gear using the thickness gauge.

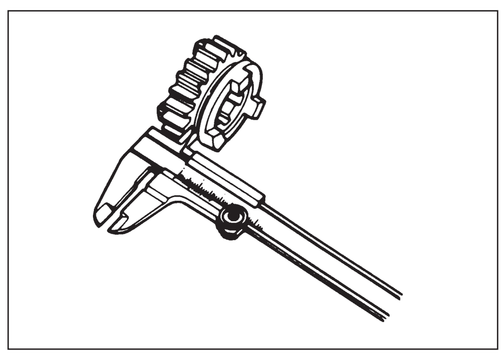
If the clearance exceeds specification, replace the fork, its respective gear, or both.

TOOL **09900-20803: Thickness gauge**
09900-20101: Vernier calipers

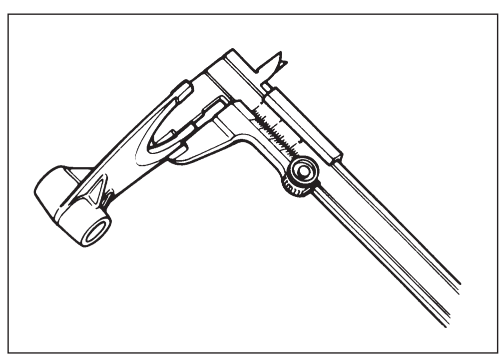


DATA **Gearshift-fork-to-gearshift-fork-groove clearance**
Service Limit: 0.50 mm (0.020 in)

DATA **Shift fork groove width**
Standard: 4.8 – 4.9 mm (0.189 – 0.193 in)



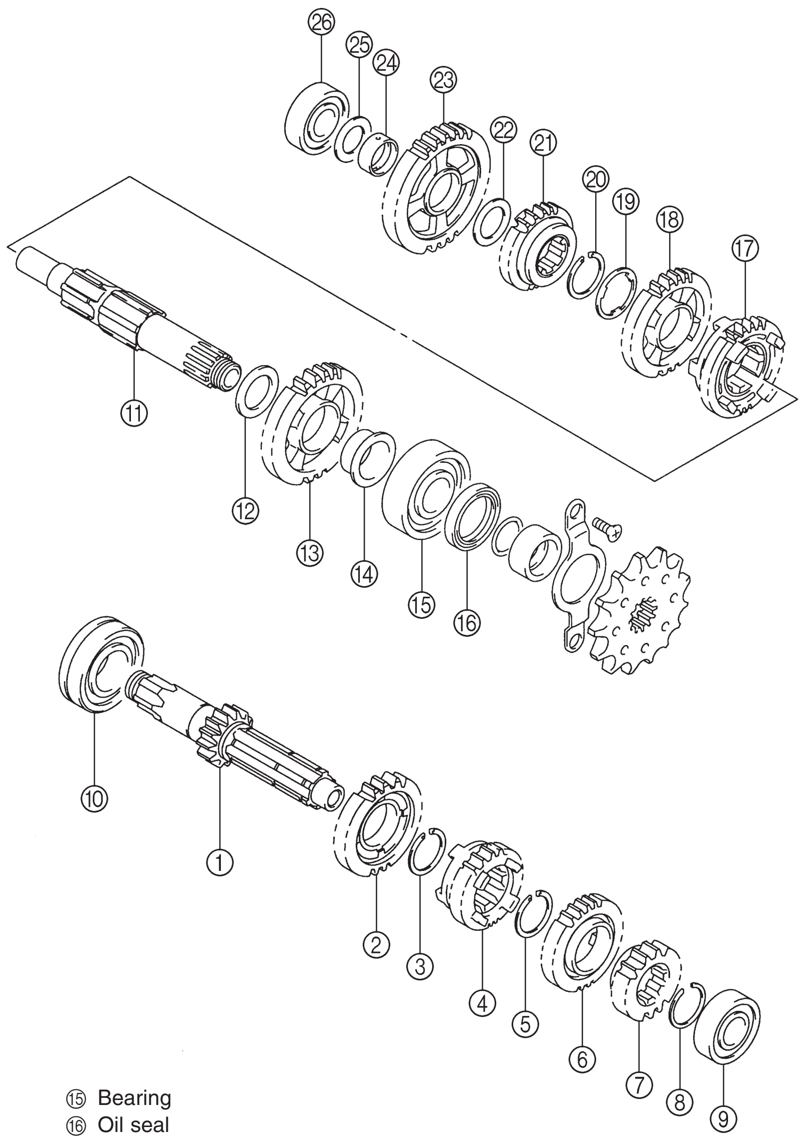
DATA **Shift fork thickness**
Standard: 4.6 – 4.7 mm (0.181 – 0.185 in)



TRANSMISSION

DISASSEMBLY

Disassemble the transmission gears as shown.



① Countershaft
② 5th (top) drive gear
③ Circlip
④ 3rd drive gear
⑤ Circlip
⑥ 4th drive gear
⑦ 2nd drive gear
⑧ Circlip
⑨ Bearing
⑩ Bearing
⑪ Driveshaft
⑫ Washer
⑬ 2nd driven gear
⑭ Spacer
⑮ Bearing
⑯ Oil seal
⑰ 4th driven gear
⑱ 3rd driven gear
⑲ Washer
⑳ Circlip
㉑ 5th (top) driven gear
㉒ Washer
㉓ 1st (low) driven gear
㉔ Spacer
㉕ Washer
㉖ Bearing

REASSEMBLY

Reassemble the transmission in the reverse order of disassembly. Pay special attention to the following points:

NOTE:
Before installing the gears, apply engine oil to the inner surface of each gear and bushing.

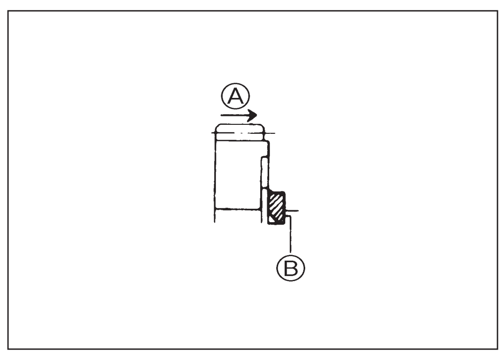
CAUTION

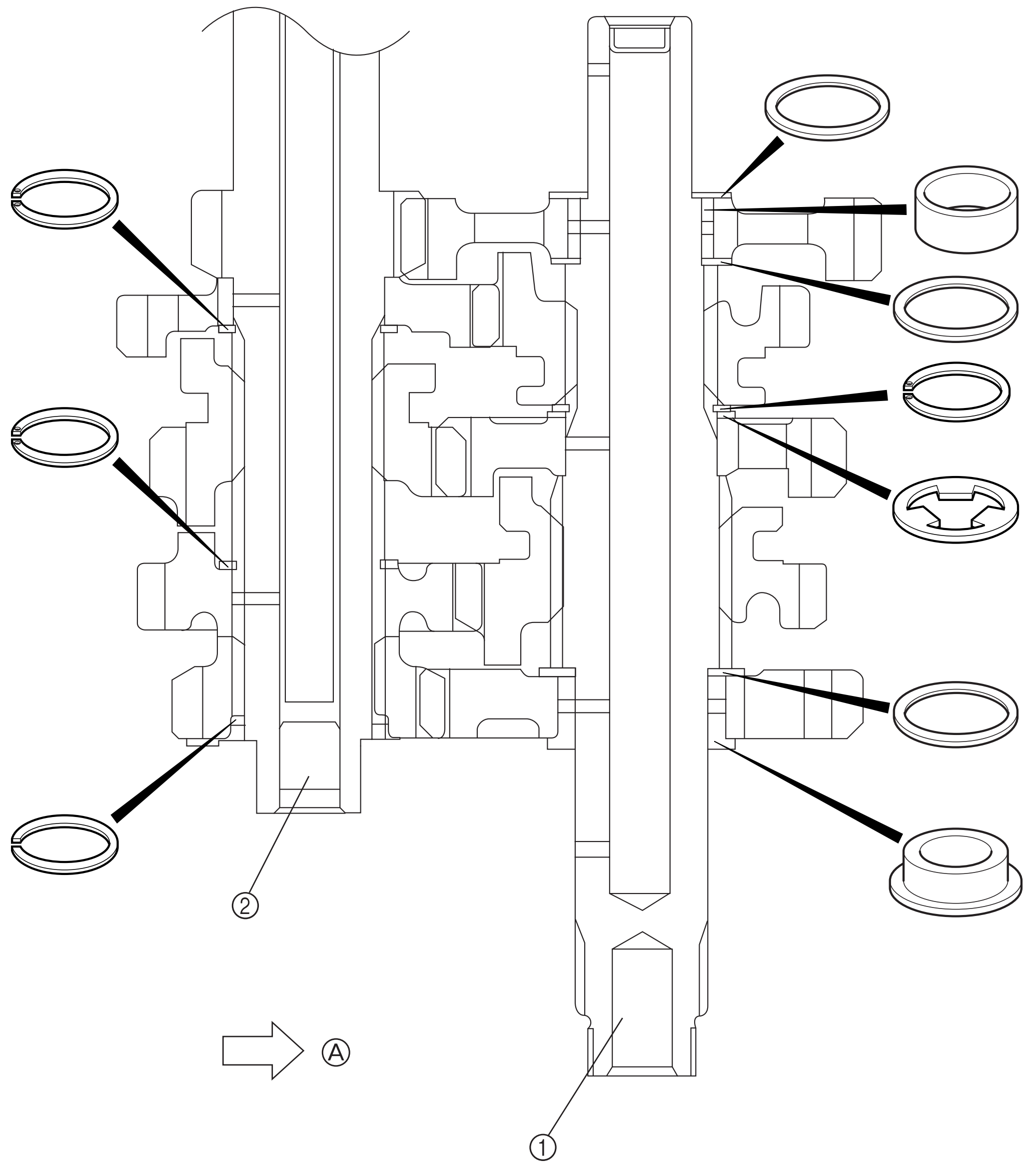
- **Never reuse a circlip. After a circlip has been removed from a shaft, it should be discarded and a new circlip must be installed.**
- **When installing a new circlip, do not expand the end gap larger than required to slip the circlip over the shaft.**
- **After installing a new circlip, make sure that it is completely seated in its groove and securely fitted.**

NOTE:
When reassembling the transmission, attention must be given to the locations and positions of the washers and circlips. The cross sectional view shows the correct position of the gears, washers, and circlips. (☞ 3-41)

- When installing a new circlip, pay attention to the direction of the circlip. Fit it to the side where the thrust is, as shown. The rounded side should be against the gear surface.

Ⓐ Thrust
Ⓑ Sharp edge

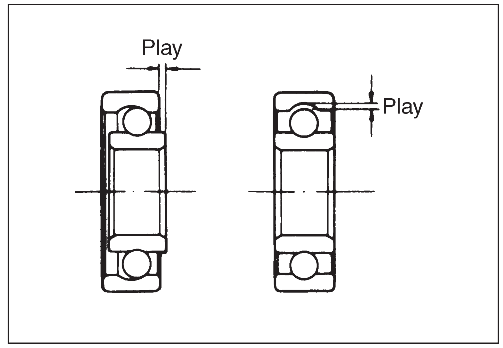




① Countershaft
② Driveshaft

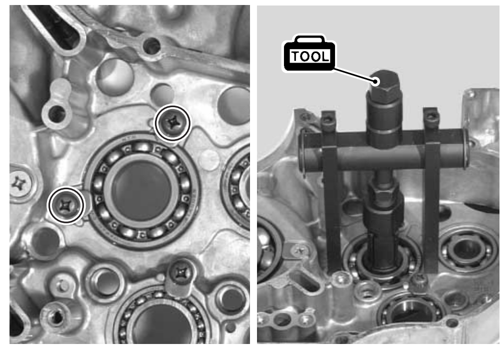
BEARINGS

Wash the bearing with a cleaning solvent and lubricate it with motor oil before inspection. Rotate the inner race and check to see that it turns smoothly. If it does not turn quietly and smoothly, or if there are signs of any abnormalities, the bearing is defective and must be replaced with a new one as follows.



RIGHT COUNTERSHAFT BEARING

- Remove the bearing retainer.
- Remove the right countershaft bearing using the special tool.

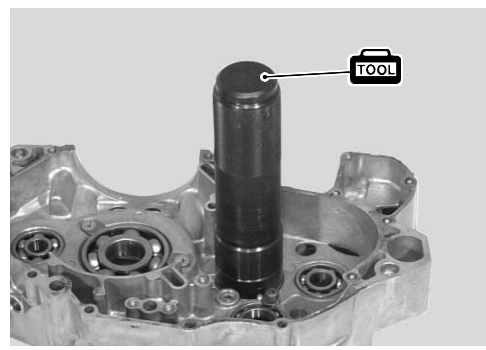


TOOL **09921-20220: Bearing remover set**

CAUTION

Replace the removed bearing with a new one.

- Install the right countershaft bearings using the special tool.



TOOL **09913-70210: Bearing installer set**

- Apply a small quantity of THREAD LOCK “1342” or THREAD LOCK SUPER “1322” to the bearing retainer screws, and tighten them securely.

For USA

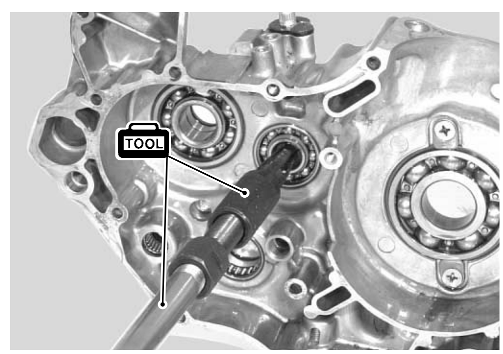
1342 **99000-32050: THREAD LOCK “1342”**

For the other countries

1322 **99000-32110: THREAD LOCK SUPER “1322”**

LEFT COUNTERSHAFT BEARING

- Remove the left countershaft bearing using the special tool.

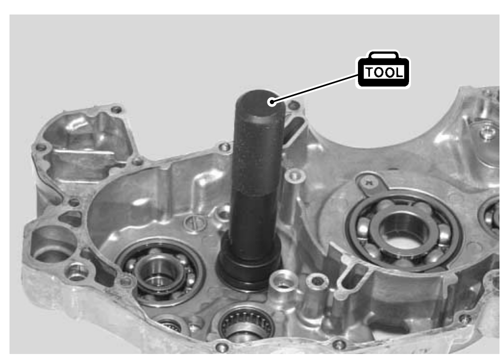


TOOL **09923-73210: Bearing remover**
09930-30102: Sliding hammer

CAUTION

Replace the removed bearing with a new one.

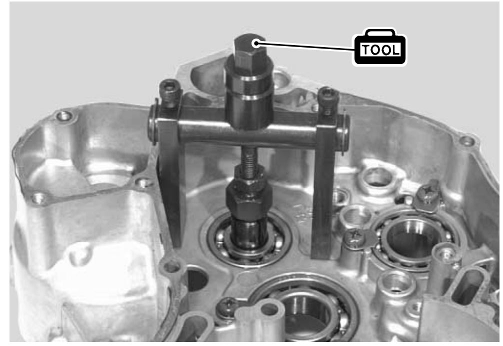
- Install the left countershaft bearing using the special tool.



TOOL **09913-70210: Bearing installer set**

DRIVESHAFT BEARINGS

- Remove the right and left driveshaft bearings using the special tool.

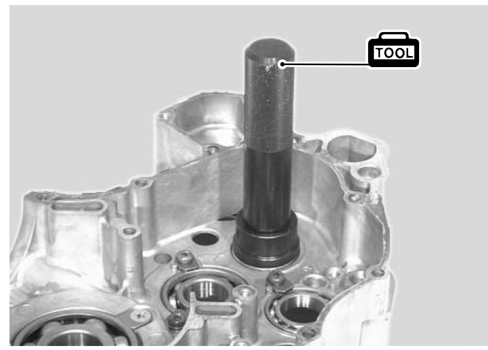


TOOL 09921-20220: Bearing remover set

⚠ CAUTION

Replace the removed bearings with new ones.

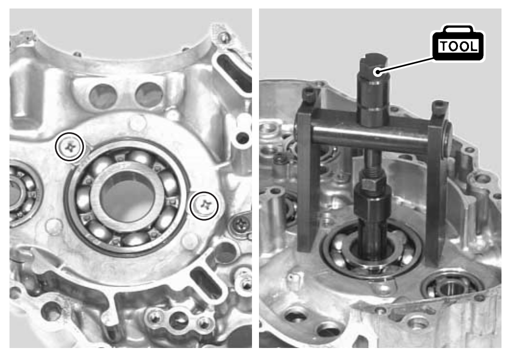
- Install the right and left driveshaft bearings using the special tool.



TOOL 09913-70210: Bearing installer set

CRANKSHAFT BEARINGS

- Remove the bearing retainer.
- Remove the right and left crankshaft bearings using the special tools.

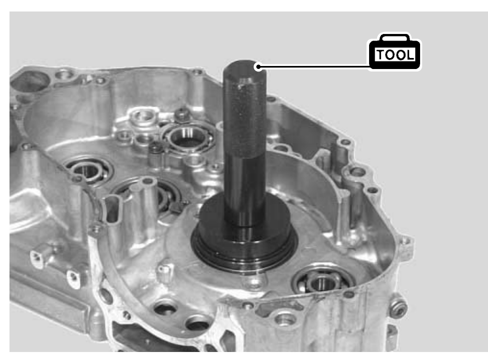


TOOL 09921-20220: Bearing remover set

⚠ CAUTION

Replace the removed bearings with new ones.

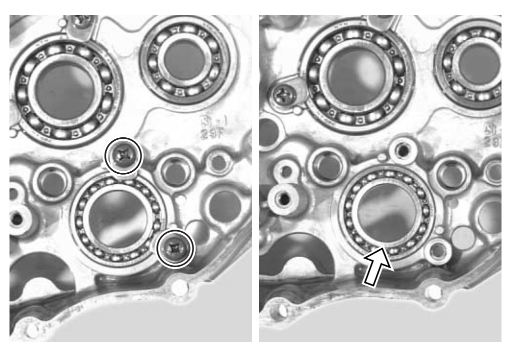
- Install the right and left crankshaft bearing using the special tool.



TOOL 09913-70210: Bearing installer set

RIGHT GEARSHIFT CAM BEARING

- Remove the bearing retainer.
- Remove the right gearshift cam bearing.



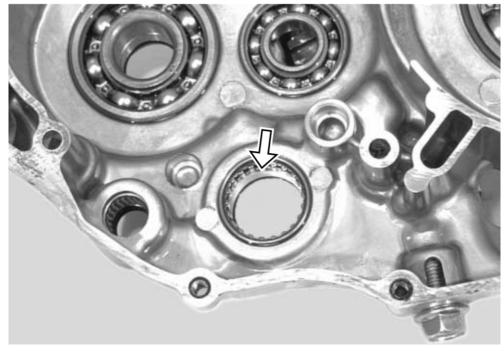
⚠ CAUTION

Replace the removed bearing with a new one.

- Install the right gearshift cam bearing.

LEFT GEARSHIFT CAM BEARING

- Remove the left gear shift cam bearing.



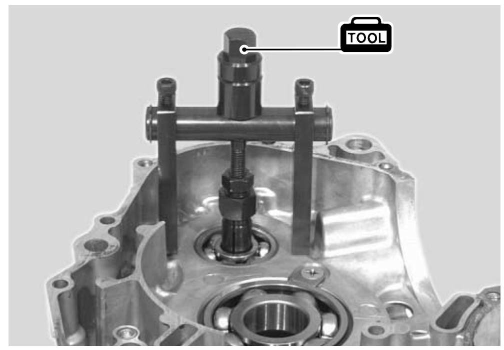
⚠ CAUTION

Replace the removed bearing with a new one.

- Install the left gearshift cam bearing.

RIGHT BALANCER SHAFT BEARING

- Remove the right balancer shaft bearing using the special tool.

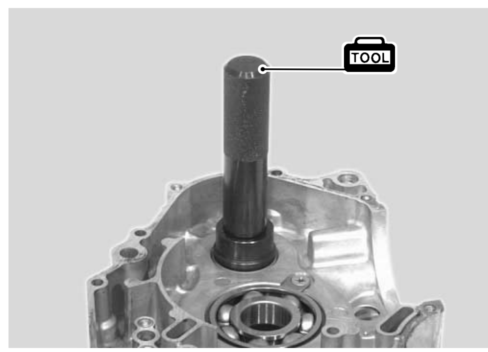


TOOL **09921-20220: Bearing remover set**

⚠ CAUTION

Replace the removed bearing with a new one.

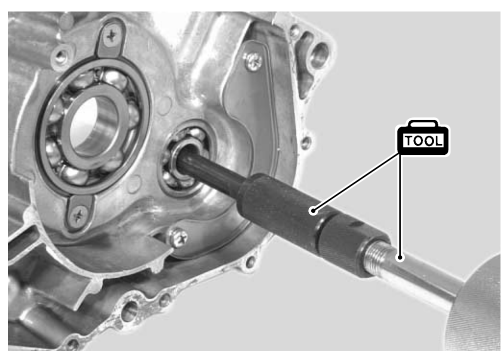
- Install the right balancer shaft bearing using the special tool.



TOOL **09913-70210: Bearing installer set**

LEFT BALANCER SHAFT BEARING

- Remove the left balancer shaft bearing using the special tools.

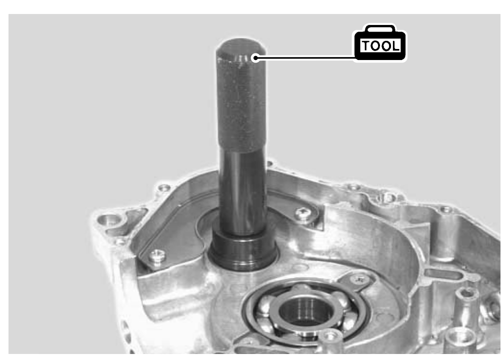


TOOL **09921-20210: Bearing remover**
09930-30102: Sliding hammer

⚠ CAUTION

Replace the removed bearing with a new one.

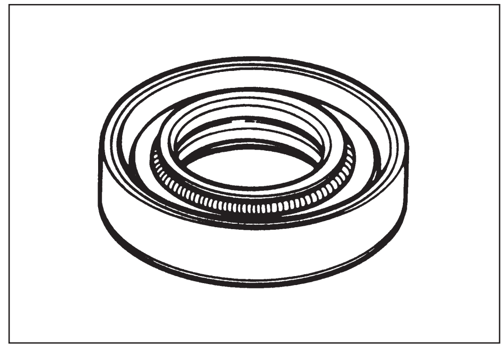
- Install the left balancer shaft bearing using the special tool.



TOOL **09913-70210: Bearing installer set**

OIL SEALS

Damage to the lip of the oil seal may result in leakage of the air/fuel mixture or engine oil. Inspect the oil seal for wear or damage. If any damages are found, replace the oil seal with a new one.



- Install the oil seals into the crankcase, clutch housing case, and generator rotor cover. Pay attention to the following points:



⚠ CAUTION

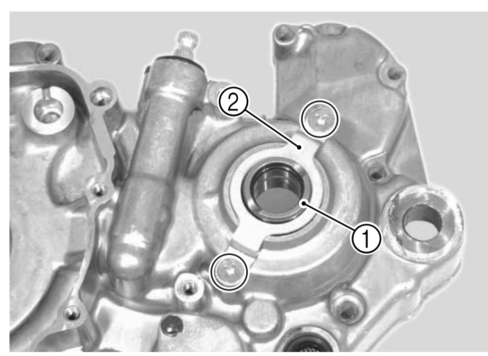
Replace the removed oil seals with new ones.

- Apply SUZUKI SUPER GREASE “A” to the lip of the oil seals.

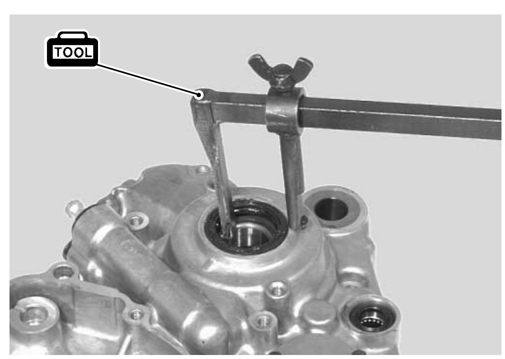
For USA
99000-25030: SUZUKI SUPER GREASE “A”
For the other countries
99000-25010: SUZUKI SUPER GREASE “A”

DRIVESHAFT OIL SEAL

- Remove the collar ① and retainer ②.



- Remove the driveshaft oil seal from the left crankcase using the special tool.

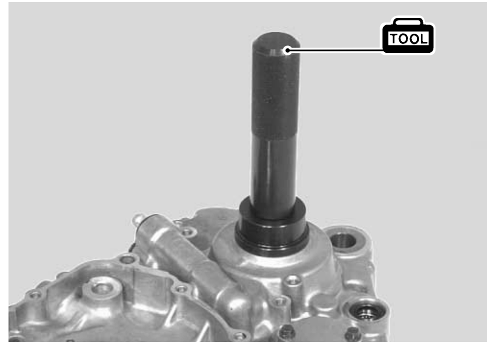


TOOL 09913-50121: Oil seal remover

⚠ CAUTION

Replace the removed oil seal with a new one.

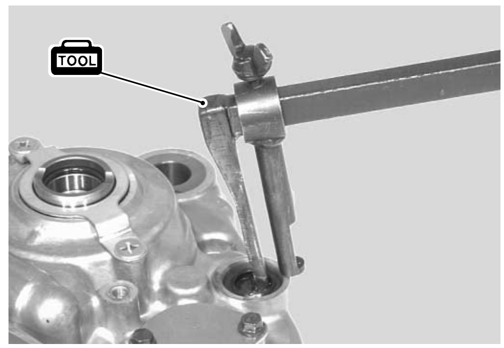
- Install the driveshaft oil seal into the left crankcase slowly, using the special tool.



TOOL **09913-70210: Bearing installer set**

GEARSHIFT SHAFT OIL SEAL

- Remove the gearshift shaft oil seal from the left crankcase, slowly using the special tool.

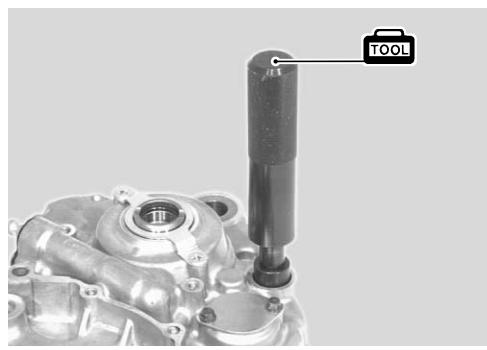


TOOL **09913-50121: Oil seal remover**

CAUTION

Replace the removed oil seal with a new one.

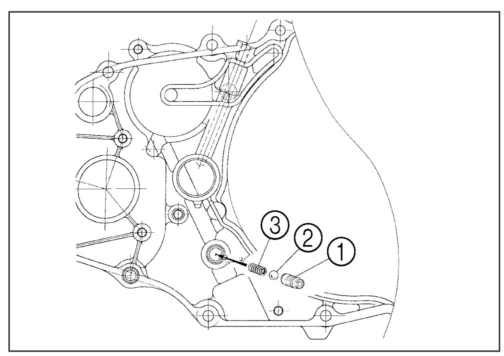
- Install the gearshift shaft oil seal into the left crankcase slowly, using the special tool.



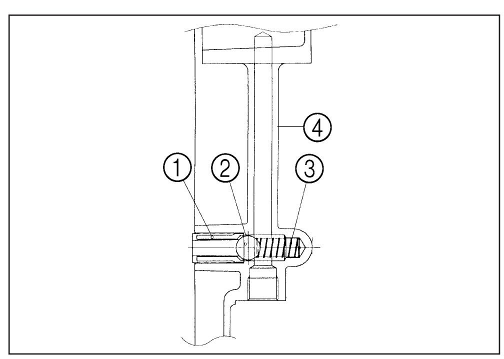
TOOL **09913-70210: Bearing installer set**

OIL CHECK VALVE

- Remove the bushing ①, oil check valve ball ② and spring ③ from the right crankcase cover.



- Install the spring ③, oil check valve ball ② and bushing ① to the right crankcase cover ④ as shown.



CAUTION

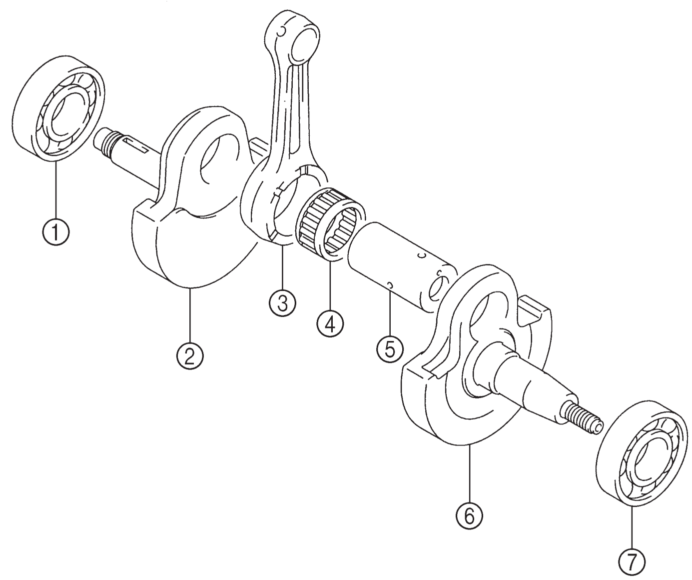
The rubber part of bushing ① must face to the outside.

ENGINE REASSEMBLY

Reassemble the engine in the reverse order of disassembly. Pay special attention to the following points:

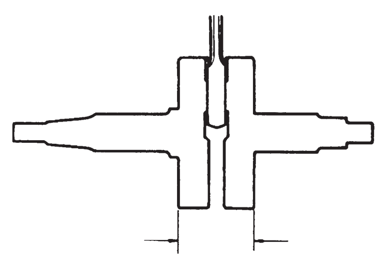
NOTE:
Apply engine oil to each running and sliding part before reassembling the engine.

CRANKSHAFT



① Bearing
② Crankshaft (R)
③ Conrod
④ Bearing
⑤ Crank pin
⑥ Crankshaft (L)
⑦ Bearing

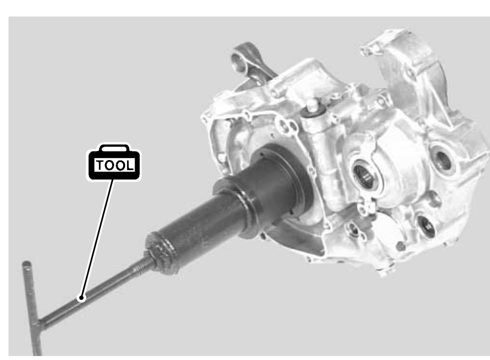
- Determine the width between the webs referring to the figure when rebuilding the crankshaft.



DATA **Crank-web-to-web-width**
Standard: 62.0 ± 0.1 mm (2.441 ± 0.004 in)

- When mounting the crankshaft in the crankcase, it is necessary to pull its left end into the crankcase by using the special tools.

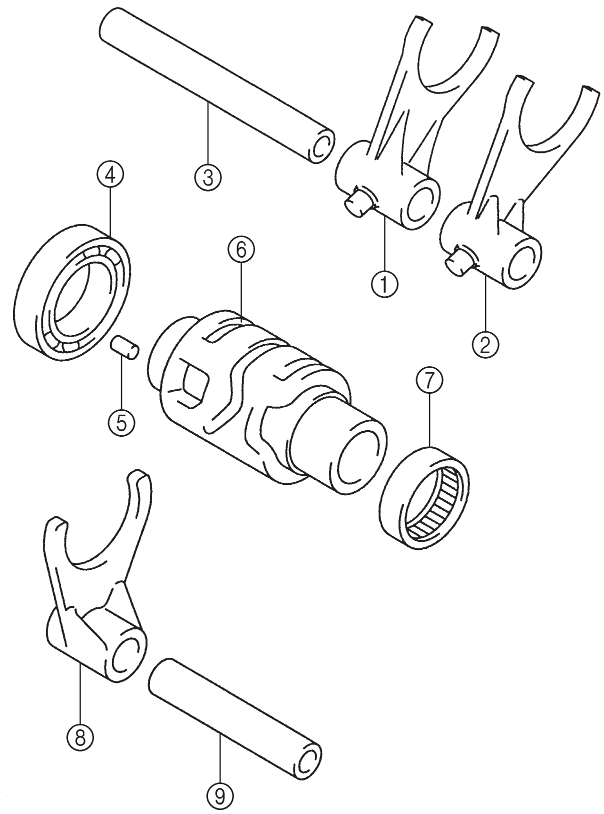
TOOL **09910-32812: Crankshaft installer**
09940-52861: Attachment



⚠ CAUTION

Never fit the crankshaft into the crankcase by striking it with a plastic hammer.
Always use the special tool, otherwise the accuracy of the crankshaft alignment will be affected.

GEARSHIFT CAM AND FORK



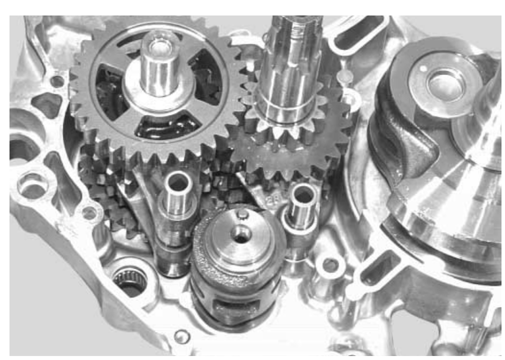
① Gearshift fork No.1
② Gearshift fork No.2
③ Gearshift fork shaft
④ Bearing
⑤ Pin
⑥ Gearshift cam
⑦ Bearing
⑧ Gearshift fork No.3
⑨ Gearshift fork shaft

- Install the gearshift forks into the gearshifting grooves in the correct position and direction.



- Install the gearshift fork shafts.

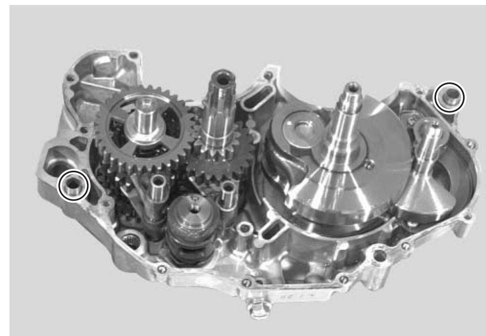
NOTE:
* *After the gearshift fork shaft and gearshift forks have been fitted, make sure that the gears engage normally.*
* *Set the transmission gears to the neutral position.*



CRANKCASE

Reassemble the crankcase in the reverse order of disassembly. Pay special attention to the following points:

- Thoroughly remove the sealant material and oil stains on the mating surface of the right and left crankcases.
- Before installing the sump filter, wash the sump filter with cleaning solvent, and then blow compressed air through it to dry it off.
- Install the dowel pins to the left crankcase.
- Apply engine oil to the conrod big end and to the transmission gears.



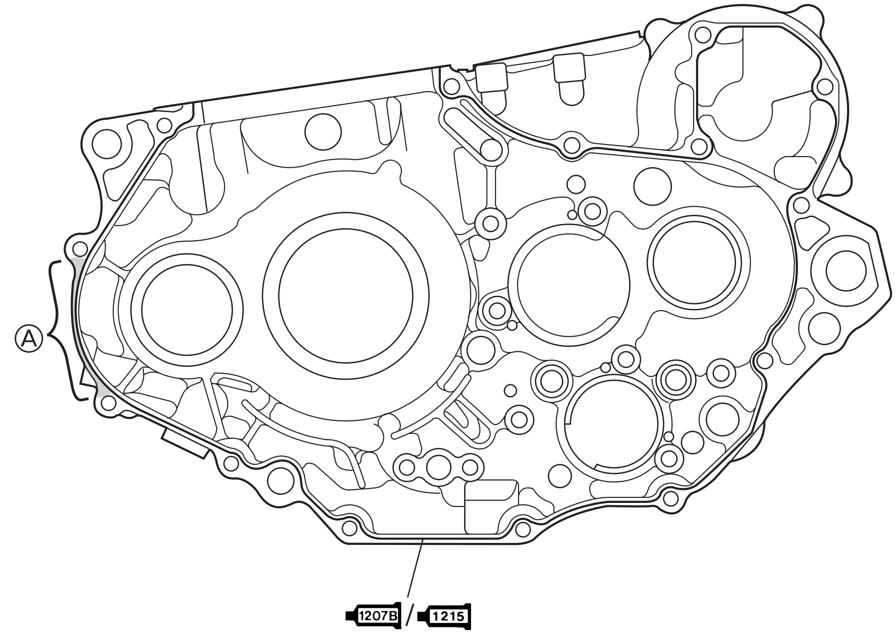
- Apply SUZUKI BOND "1207B" or "1215" to the mating surface of the right crankcase and Ⓐ part of both crankcases as shown.

For USA

1207B 99104-31140: SUZUKI BOND "1207B"

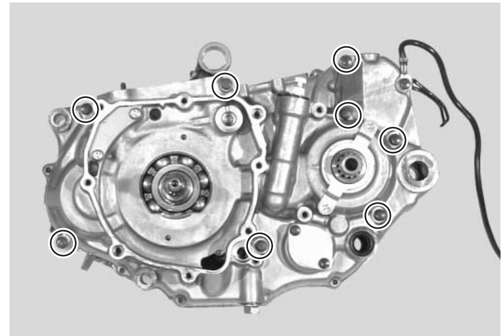
For the other countries

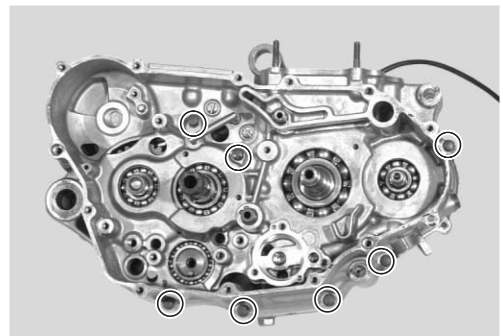
1215 99000-31110: SUZUKI BOND "1215"



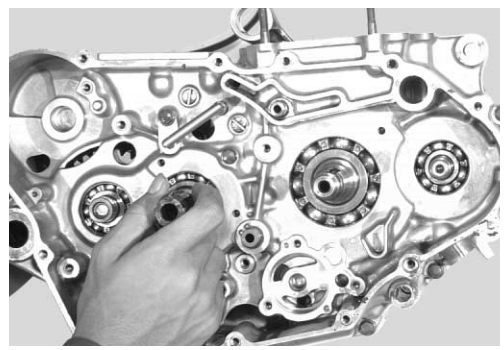
- Tighten the crankcase bolts to the specified torque.

Crankcase bolt: 11 N·m (1.1 kgf-m, 8.0 lb-ft)



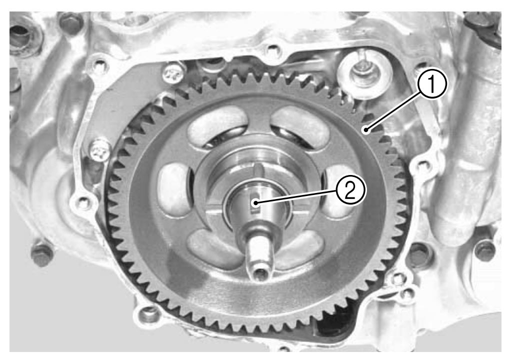


- After the crankcase bolts have been tightened, check if the crankshaft, countershaft, and driveshaft rotate smoothly. If a large resistance is felt to rotation, try to free the shafts by tapping them with a plastic mallet.



STARTER CLUTCH AND GENERATOR ROTOR

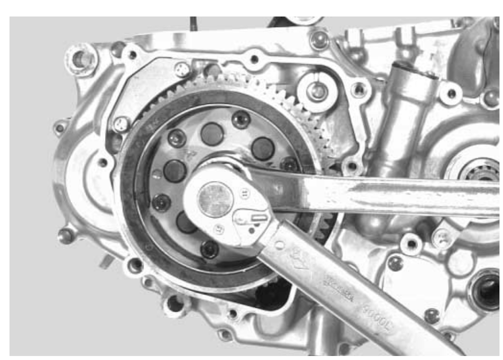
- Remove the grease from the tapered portion of the crankshaft and the generator rotor.
- Install the starter driven gear ① and key ②.



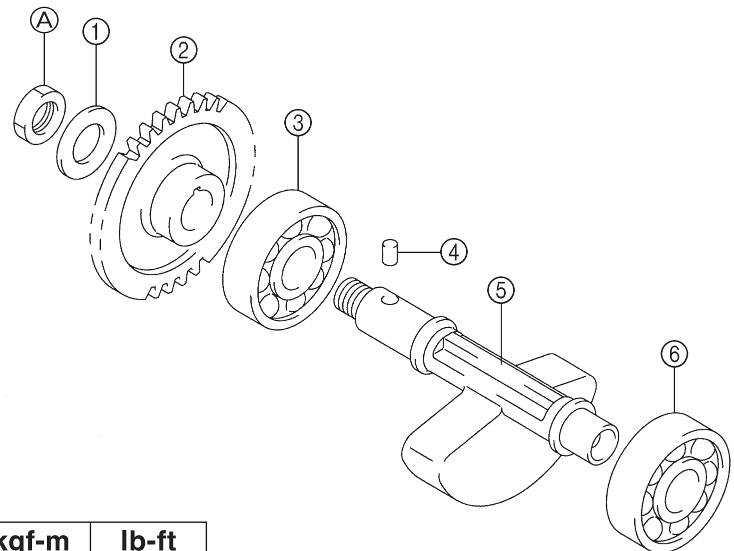
- Tighten the generator rotor nut to the specified torque using the special tool (DR-Z400) or a 26-mm offset wrench (DR-Z400E).

TOOL **09930-44913: Rotor holder**

Generator rotor nut: 100 N·m (10.0 kgf-m, 72.5 lb-ft)



BALANCER SHAFT

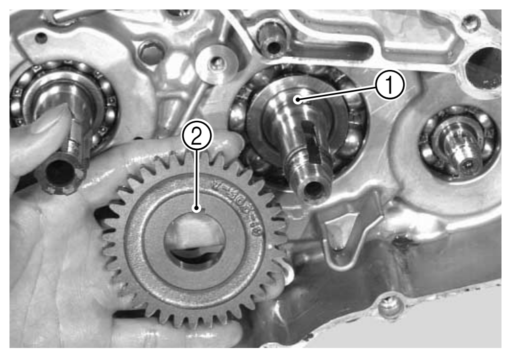


① Washer
② Balancer driven gear
③ Bearing
④ Pin
⑤ Balancer shaft
⑥ Bearing

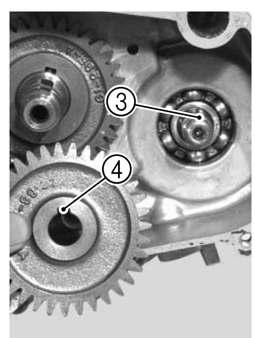
Ⓐ Balancer shaft nut

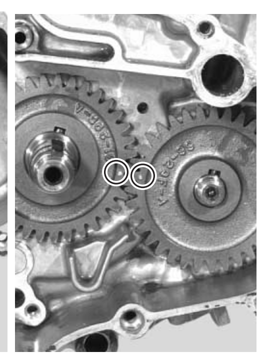
ITEM	N·m	kgf-m	lb-ft
Ⓐ	50	5.0	36.0

- When installing the balancer drive gear, align the pin ① with the groove ②.



- When installing the balancer driven gear, align the pin ③ with the groove ④.
- Install the balancer driven gear by aligning the matching marks.



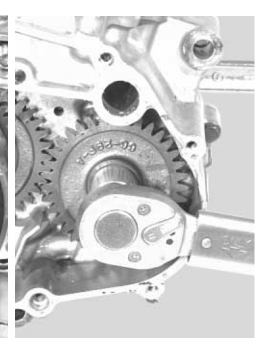


- Hold the generator rotor using the special tool (DR-Z400) or a 26-mm offset wrench (DR-Z400E), and then tighten the balancer shaft nut to the specified torque.

TOOL **09930-44913: Rotor holder**

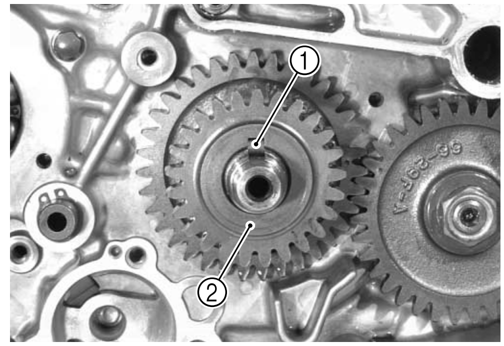
Balancer shaft nut: 50 N·m (5.0 kgf-m, 36.0 lb-ft)



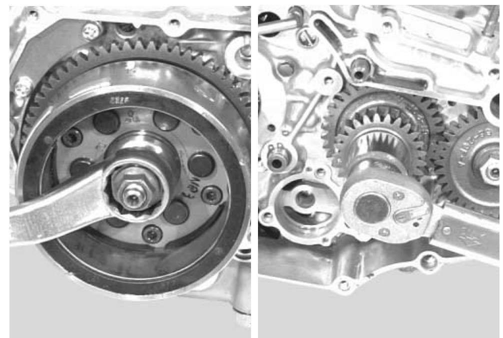


PRIMARY DRIVE GEAR

- Install the key ① and primary drive gear ②.



- Hold the generator rotor using the special tool (DR-Z400) or a 26-mm offset wrench (DR-Z400E), and then tighten the primary drive gear nut to the specified torque.

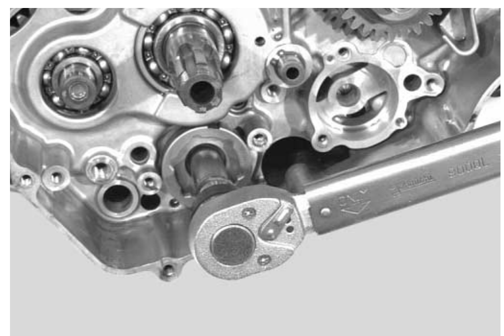


TOOL **09930-44913: Rotor holder**

Primary drive gear nut: 110 N·m (11.0 kgf-m, 79.5 lb-ft)

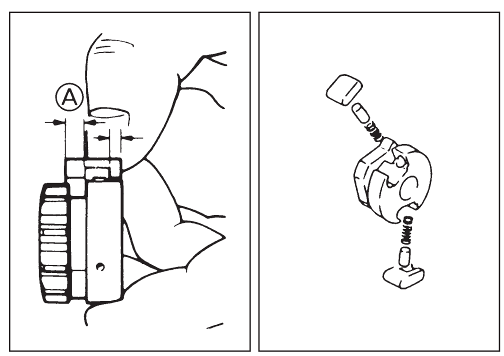
GEARSHIFT CAM DRIVEN GEAR

- Tighten the gearshift cam driven gear bolt to the specified torque.



Gearshift cam driven gear bolt:
24 N·m (2.4 kgf-m, 17.5 lb-ft)

- Install each pawl lifter into the gearshift cam driven gear. The large shoulder Ⓐ must face to the outside.



- Apply a small quantity of THREAD LOCK "1342" or THREAD LOCK SUPER "1322" to the pawl lifter screws, and then tighten them securely.



For USA
1342 **99000-32050: THREAD LOCK "1342"**
For the other countries
1322 **99000-32110: THREAD LOCK SUPER "1322"**

GEARSHIFT SHAFT

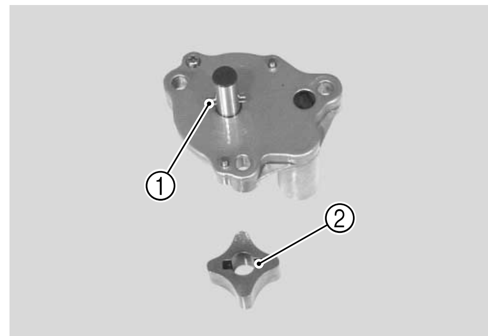
- Tighten the gearshift arm stopper to the specified torque.

Gearshift arm stopper: 19 N·m (1.9 kgf-m, 13.5 lb-ft)



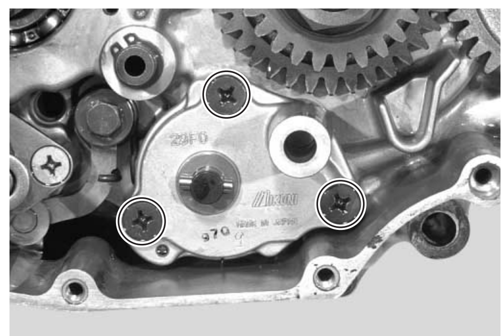
OIL PUMP

- Before mounting the oil pump, apply engine oil to the sliding surfaces of the oil pump case, outer rotor, inner rotor, and shaft.
- When installing the inner rotor, align the pin ① with the groove ②.

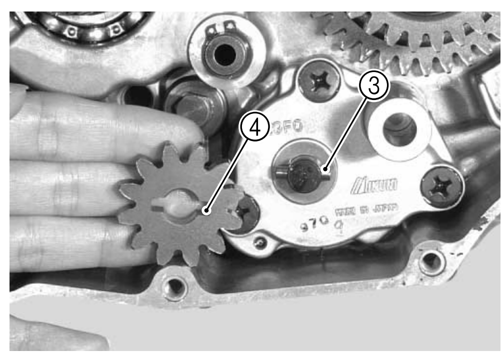


- Apply a small quantity of THREAD LOCK “1342” or THREAD LOCK SUPER “1322” to the threaded parts of the oil pump mounting screws, and then tighten them.

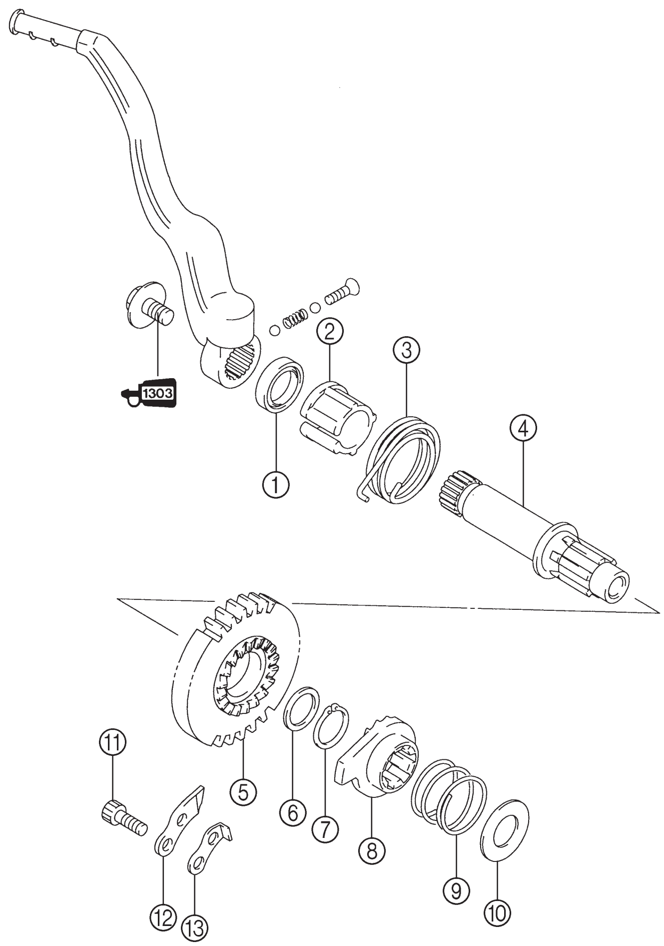
For USA
1342 99000-32050: THREAD LOCK “1342”
For the other countries
1322 99000-32110: THREAD LOCK SUPER “1322”



- When installing the oil pump driven gear, align the pin ③ with the groove ④.

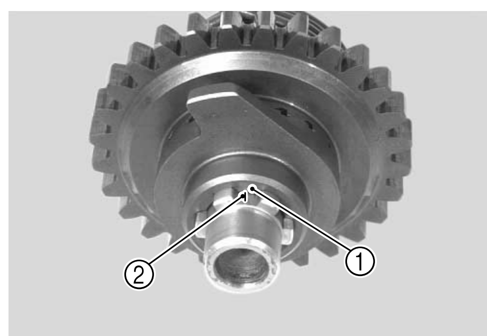


KICK STARTER (DR-Z400)

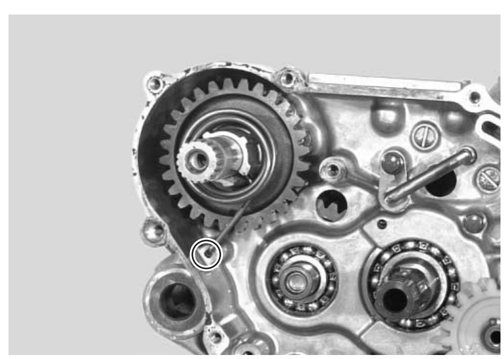


① Oil seal
② Guide
③ Spring
④ Kick starter shaft
⑤ Kick starter drive gear
⑥ Washer
⑦ Circlip
⑧ Kick starter
⑨ Spring
⑩ Washer
⑪ Bolt
⑫ Kick starter guide
⑬ Kick starter stopper

- When installing the kick starter drive gear onto the kick starter shaft, align the punch mark ① on the kick starter with the line ③ on the kick starter shaft.

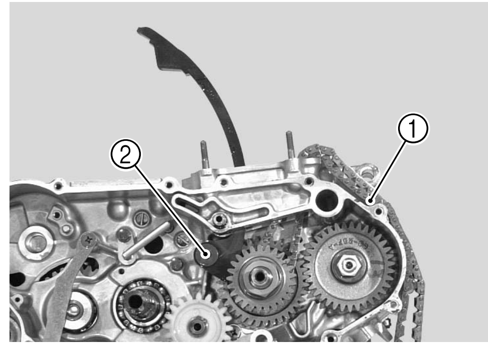


- Install the kick starter shaft assembly and hook the end of the spring onto the crankcase boss.



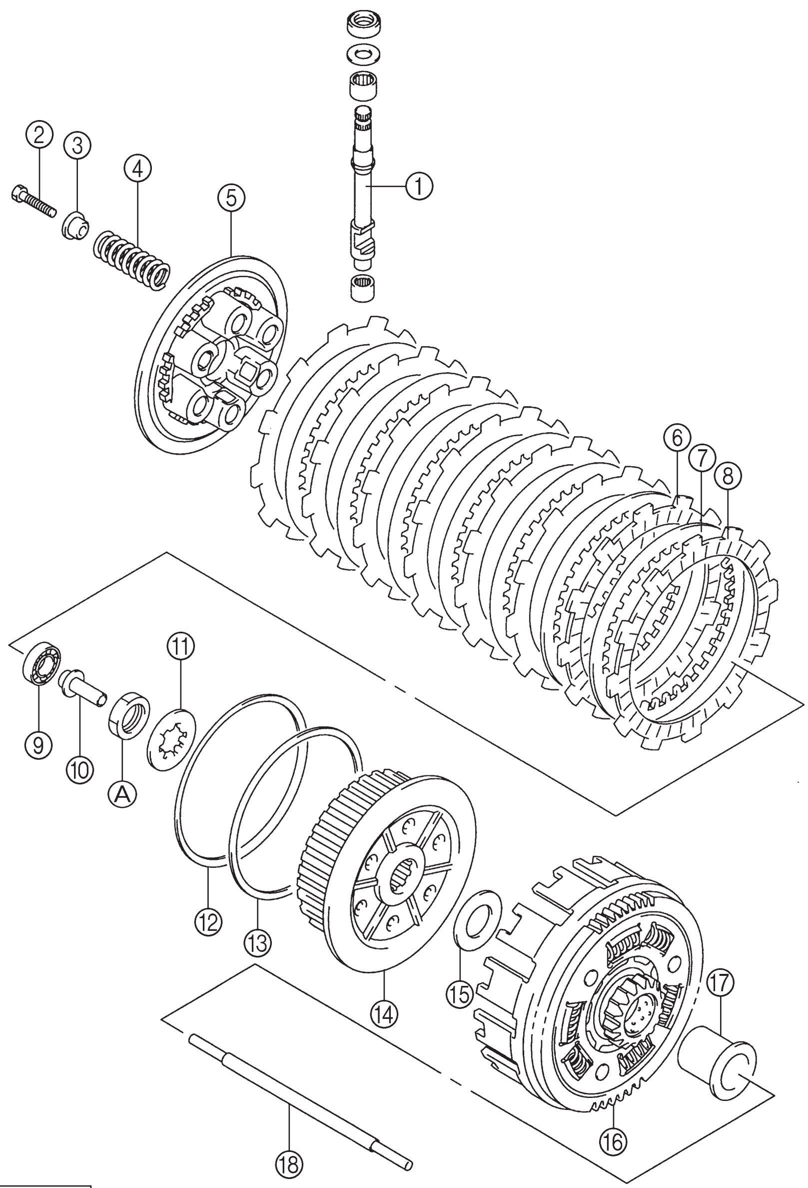
CAM CHAIN

- Install the cam chain ① on to the sprocket.
- Tighten the cam chain tensioner mounting bolt ② to the specified torque.



Cam chain tensioner mounting bolt:
10 N·m (1.0 kgf-m, 7.0 lb-ft)

CLUTCH



① Clutch release camshaft
② Bolt
③ Spring retainer
④ Spring
⑤ Pressure plate
⑥ Drive plate (7 pcs)
⑦ Driven plate (7 pcs)
⑧ Drive plate (1 pc)
⑨ Bearing
⑩ Push piece
⑪ Washer
⑫ Spring washer
⑬ Spring washer seat
⑭ Clutch sleeve hub
⑮ Washer
⑯ Primary driven gear assembly
⑰ Spacer
⑱ Push rod

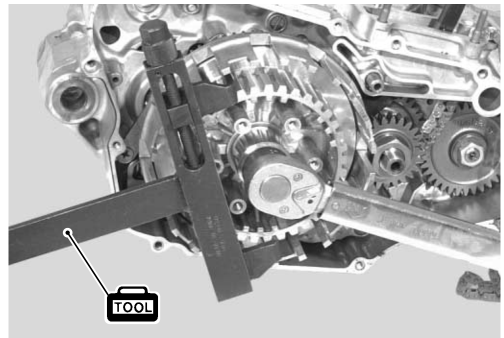
Ⓐ Clutch sleeve hub nut

ITEM	N·m	kgf-m	lb-ft
Ⓐ	70	7.0	50.5

- Hold the clutch sleeve hub using the special tool, and then tighten the clutch sleeve hub nut to the specified torque.

TOOL 09920-53740: Clutch sleeve hub holder

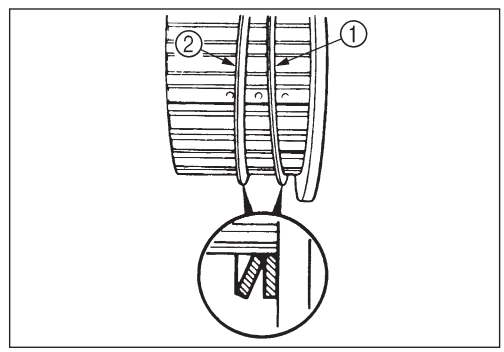
Clutch sleeve hub nut: 70 N·m (7.0 kgf-m, 50.5 lb-ft)



- Bend the tongue of the washer securely.



- Install the spring washer seat ① and spring washer ② onto the clutch sleeve hub correctly.

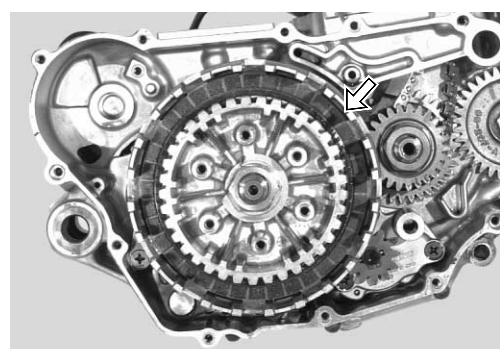


- Insert the clutch drive plates and driven plates one by one into the clutch sleeve hub in the prescribed order.

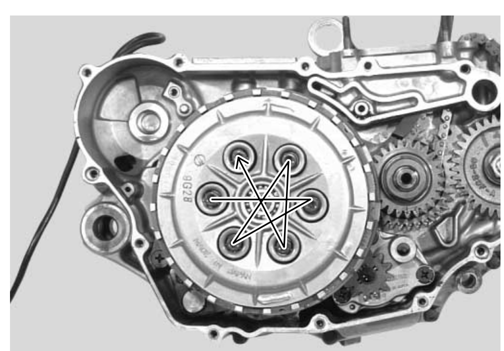
NOTE:

∗ *Be sure to install the drive plate with an inside diameter of 122.5 mm (4.82 in), first.*

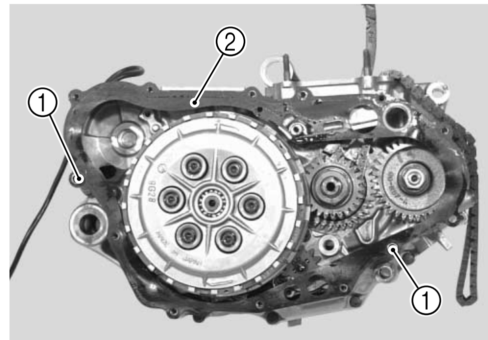
∗ *Two different types of drive plates are used: one with an inside diameter of 122.5 mm (4.82 in) and seven with an inside diameter of 116 mm (4.5 in). For further information refer to page 3-55.*



- Tighten the clutch spring set bolts securely in diagonal stages.



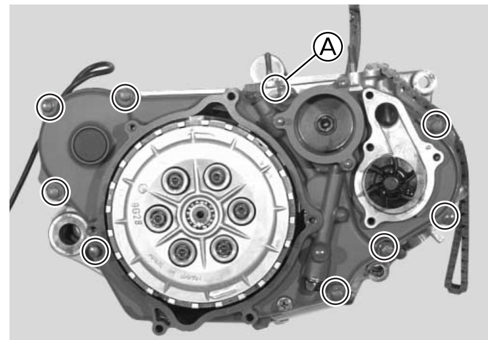
RIGHT CRANKCASE COVER



- Install the dowel pins ① and new gasket ②.

⚠ CAUTION

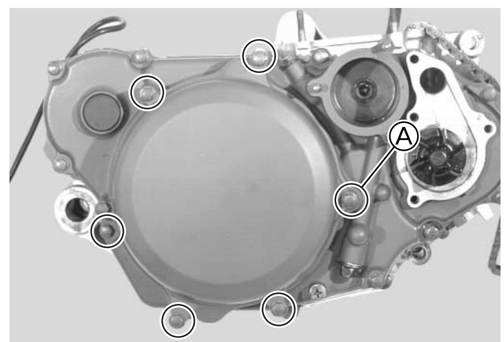
Use a new gasket to prevent oil leakage.



- Tighten the right crankcase cover bolts securely.

NOTE:
Install the new gasket onto the right crankcase cover bolt Ⓐ as shown.

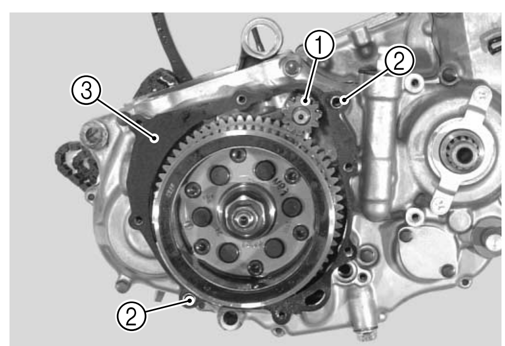
CLUTCH COVER



- Tighten the clutch cover bolts securely.

NOTE:
Install the new gasket onto the clutch cover bolt Ⓐ as shown.

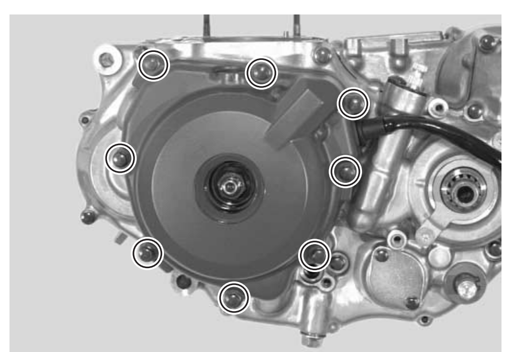
GENERATOR ROTOR COVER



- Install the starter driven gear ① (DR-Z400E), dowel pins ②, and new gasket ③.

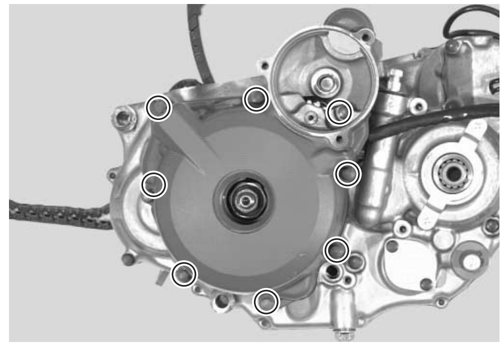
⚠ CAUTION

Use a new gasket to prevent oil leakage.



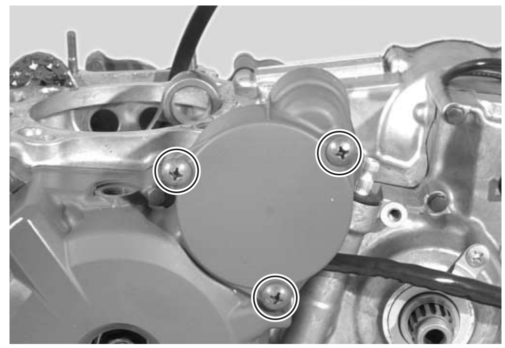
- Tighten the generator rotor cover bolts securely. (DR-Z400)

- Tighten the generator rotor cover bolts securely. (DR-Z400E)



STARTER DRIVE GEAR COVER (DR-Z400E)

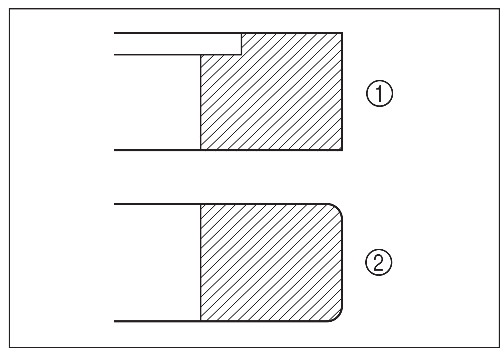
- Tighten the starter drive gear cover screws securely.

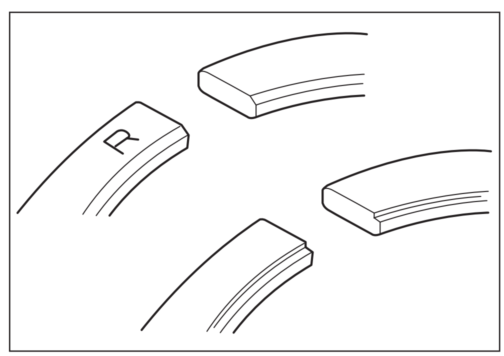


PISTON RING

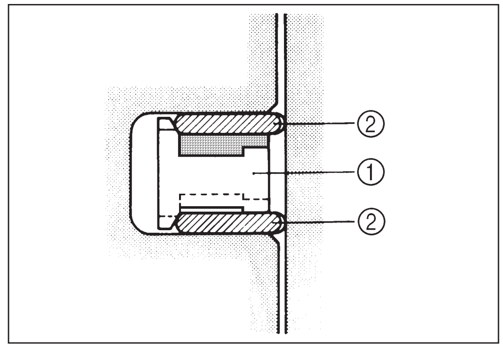
- Install the oil ring first, the 2nd ring second, and the 1st ring last.

NOTE:
∗ The 1st ① and 2nd ② piston rings differ in shape.
∗ The 1st and 2nd piston rings should be installed with the mark facing up.





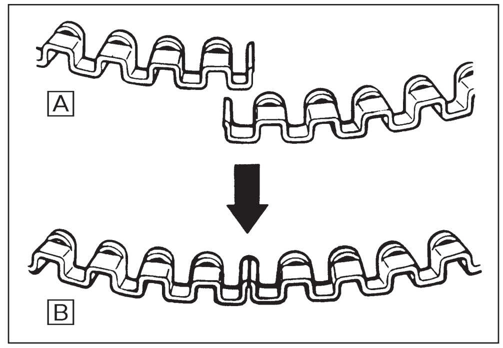
- First, install a spacer ① into the oil ring groove, and then install the two side rails ②. The spacer and side rails do not have a designated top and bottom. They can be installed in any position.



⚠ CAUTION

When installing the spacer, be careful not to allow its two ends to overlap in the groove.

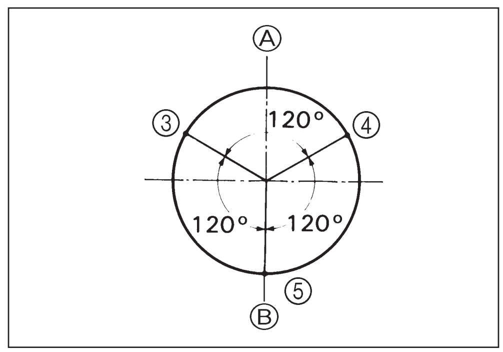
Ⓐ INCORRECT
Ⓑ CORRECT



- Position the piston ring gaps as shown. Before inserting the piston into its cylinder, check that the gaps are properly positioned.

Ⓐ Exhaust side
Ⓑ Intake side

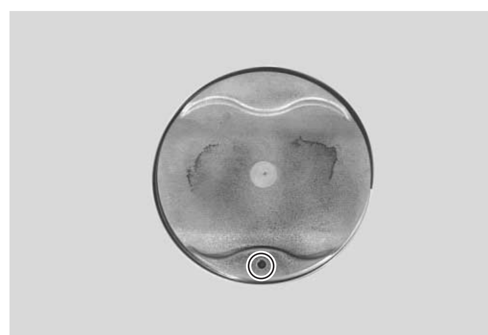
③ 2nd ring and lower side rail
④ Upper side rail
⑤ 1st ring and spacer



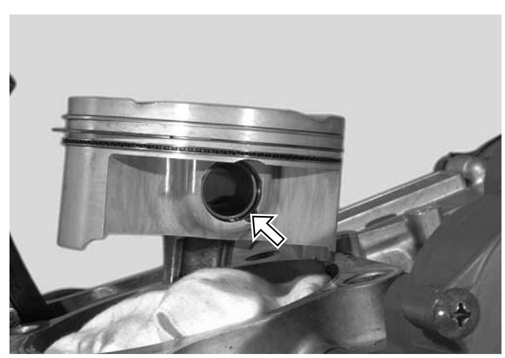
PISTON AND CYLINDER

Install the piston and cylinder in the reverse order of removal.

NOTE:
Install the piston with the punch mark on the piston head facing toward the exhaust side.



- Apply molybdenum oil solution onto the piston pin.
- Apply molybdenum oil solution to the small end of the conrod.
- Place a clean rag over the cylinder base to prevent the piston pin circlip from dropping into the crankcase, and then fit the piston pin circlip with long-nose pliers.

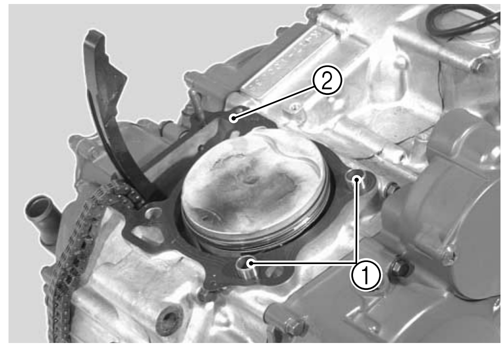


⚠ CAUTION

Use a new piston pin circlip to prevent circlip failure with a bent one.

- Apply engine oil to the sliding surface of the piston and big end of the conrod.

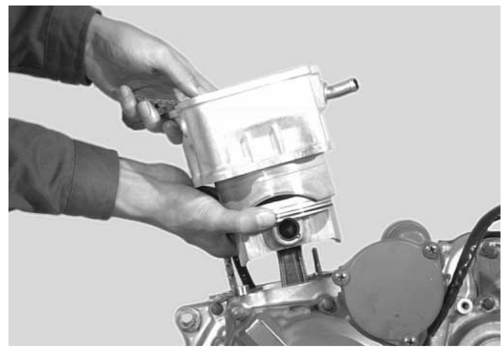
- Install the dowel pins ① and new gasket ② onto the crankcase.



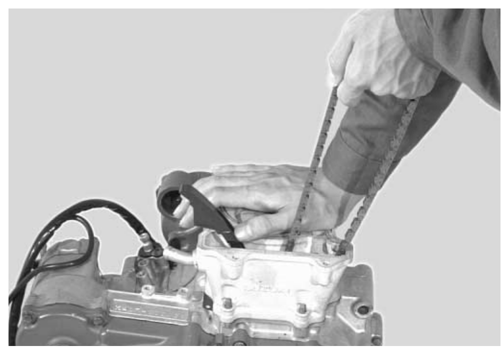
⚠ CAUTION

Use a new gasket to prevent oil leakage.

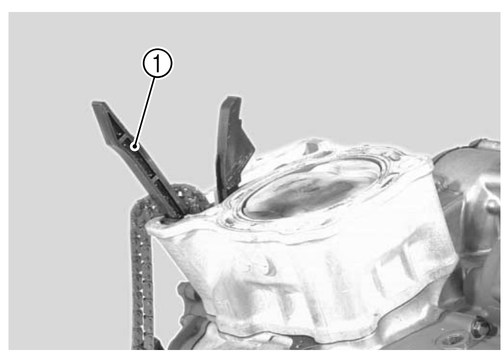
- Hold each piston ring with the piston ring sections positioned correctly and put it into the cylinder. Make sure that the piston rings are caught by the cylinder skirt.



NOTE:
* *When mounting the cylinder, after attaching the camshaft drive chain, keep the camshaft drive chain taut. The camshaft drive chain must not be caught between the cam drive chain sprocket and crankcase when the crankshaft is rotated.*

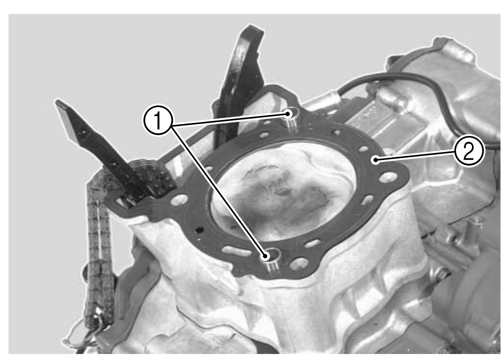


NOTE:
* *There is a holder for the bottom end of the cam chain guide cast in the crankcase. Make sure that the guide ① is inserted properly or binding of the cam chain and guide may result.*



CYLINDER HEAD

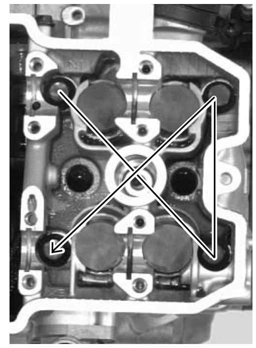
- Install the dowel pins ① and new gasket ②.

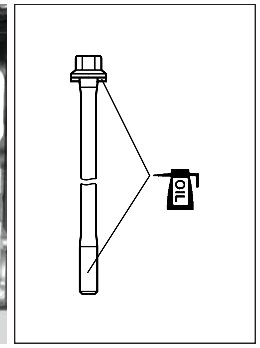


⚠ CAUTION

Use a new cylinder head gasket to prevent gas leakage.

* With the head snugly seated on the cylinder, secure it by tightening the bolts in diagonal stages. Tighten the cylinder head bolts to the specified torque.

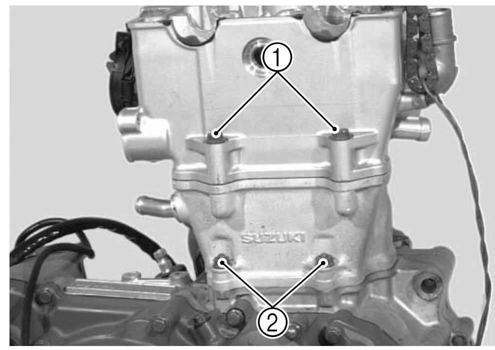




Cylinder head bolt
Initial: 25 N·m (2.5 kgf-m, 18.0 lb-ft)
Final: 46 N·m (4.6 kgf-m, 33.5 lb-ft)

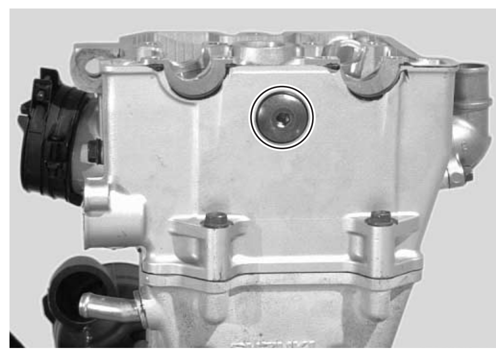
NOTE:
∗ *Apply engine oil to the threaded parts of the cylinder head bolts and its washers.*
∗ *Be sure to install the washer with rounded side facing up.*

* After tightening the cylinder head bolts to specification, tighten the cylinder head bolts ① and cylinder nuts ② to the specified torque.



Cylinder head bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)
Cylinder nut: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

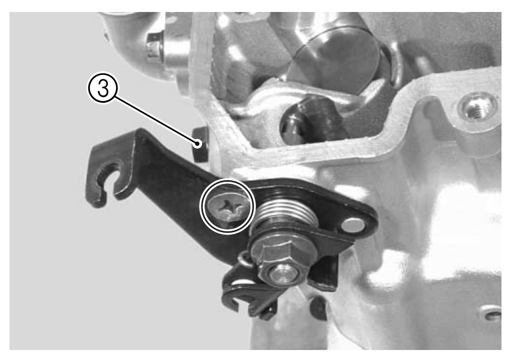
* Tighten the cylinder head side bolt to the specified torque.



Cylinder head side bolt: 14 N·m (1.4 kgf-m, 10.0 lb-ft)

NOTE:
Be sure to install the gasket with the core bar facing toward the head of the bolt.

* Install the decompression lever assembly to the cylinder head, and tighten its bolt ③ to the specified torque. (DR-Z400)



Decompression bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

CAMSHAFT/AUTOMATIC DECOMPRESSION ASSEMBLY

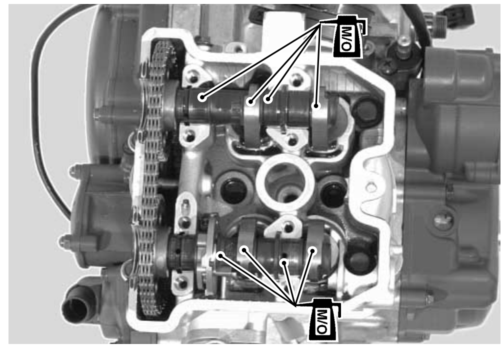
* Turn the generator rotor until the “T” line on the generator rotor is aligned with the center of the hole in the generator cover.



⚠ CAUTION

If the crankshaft is turned without drawing the cam chain upward, the cam chain will catch between crankcase and cam chain drive sprocket.

NOTE:
Just before installing the camshaft into the cylinder head, apply molybdenum oil solution to the camshaft journals and cam faces. Also, apply engine oil to the camshaft journal holders.

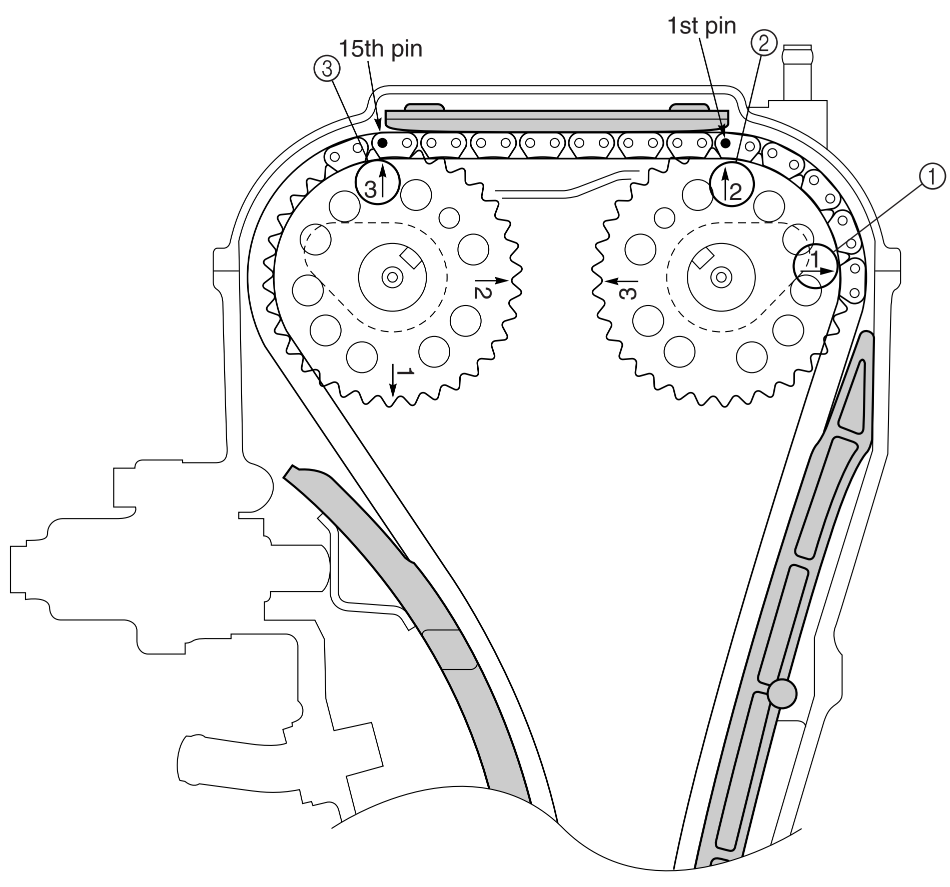


- Place each camshaft into the correct position.

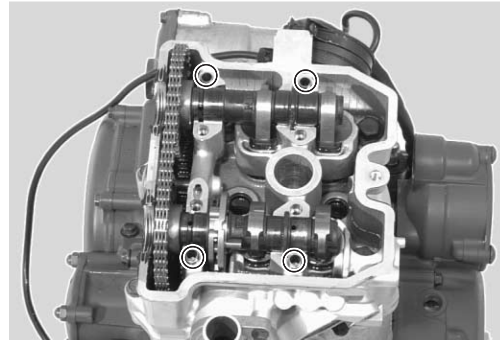
NOTE:
Camshafts which are marked “EX” are for the exhaust side and those marked “IN” are for the intake side.

- With the “T” line aligned with the center of the hole, hold the camshaft steady and lightly pull up the cam chain to remove any slack between the cam chain drive sprocket and exhaust camshaft sprocket.
- The exhaust camshaft sprocket has an arrow marked “1” ①. Turn the exhaust camshaft so that the arrow is aligned with the gasket surface of the cylinder head. Engage the cam chain with the exhaust camshaft sprocket.
- The other arrow marked “2” ② should now be pointing straight up. Starting from the roller pin that is directly above the arrow marked “2” ②, count out 15 roller pins (from the exhaust camshaft side going towards the intake camshaft side).
  Engage the 15th roller pin on the cam chain with the arrow marked “3” ③ on the intake sprocket. Refer to the following illustrations.

NOTE:
The cam chain should now be on all three sprockets. Be careful not to move the crankshaft until the camshaft journal holders and cam chain tensioner are secured.

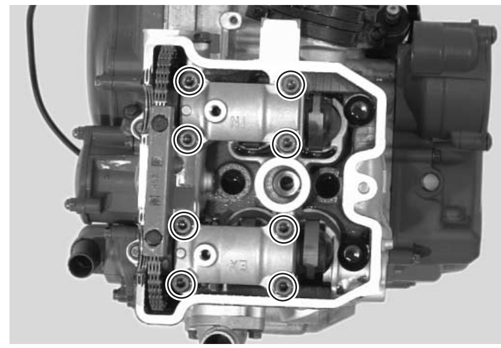


- Install the dowel pins.
- Place each camshaft journal holders and cam chain guide into the correct position.



NOTE:
Camshaft journal holders marked "EX" are for the exhaust side and those marked "IN" are for the intake side.

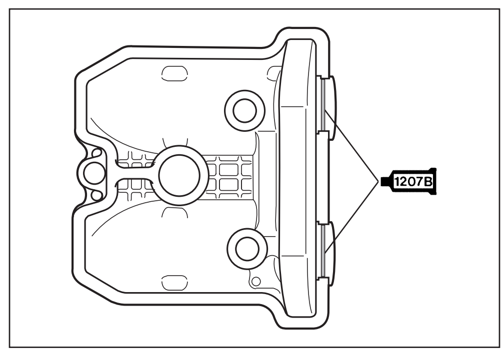
- Tighten the camshaft journal holder bolts to the specified torque.



Camshaft journal holder bolt:
10 N·m (1.0 kgf-m, 7.0 lb-ft)

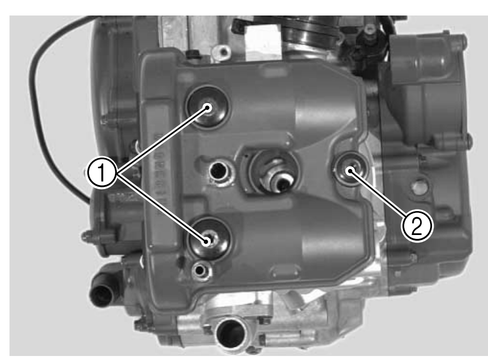
NOTE:
When tightening the camshaft journal holder bolts, the piston position must be at TDC on the compression stroke.

CYLINDER HEAD COVER



- Thoroughly wipe off oil from the fitting surfaces of the cylinder head and cover.
- Apply SUZUKI BOND "1207B" to the end caps of the cylinder head cover gasket as shown.

For USA
1207B **99104-31140: SUZUKI BOND "1207B"**
For the other countries
1207B **99000-31140: SUZUKI BOND "1207B"**



- Apply engine oil to both sides of the washer ①.
- Lightly tighten the cylinder head cover bolts in diagonal stages, and then tighten them to the specified torque.

Cylinder head cover bolt
Initial: 10 N·m (1.0 kgf-m, 7.0 lb-ft)
Final: 14 N·m (1.4 kgf-m, 10.0 lb-ft)

⚠ CAUTION

Use a new washers ① and cushion ②.

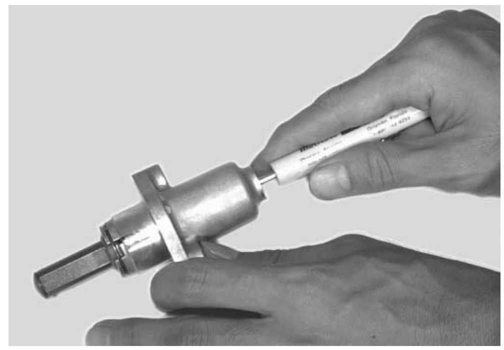
CAM CHAIN TENSION ADJUSTER

Install the cam chain tension adjuster. Pay special attention to the following points:

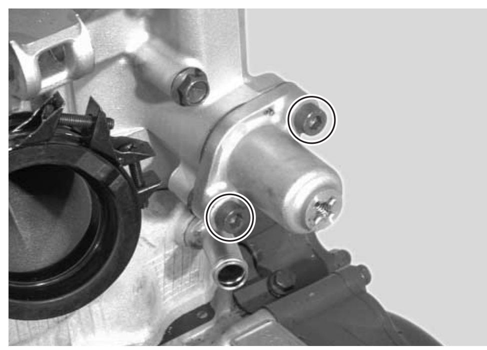
- Apply engine oil to the push rod.



- Turn the adjusting screw clockwise with a flat-bladed screwdriver until the push rod is locked.



- Fit a new gasket to the chain tension adjuster body.



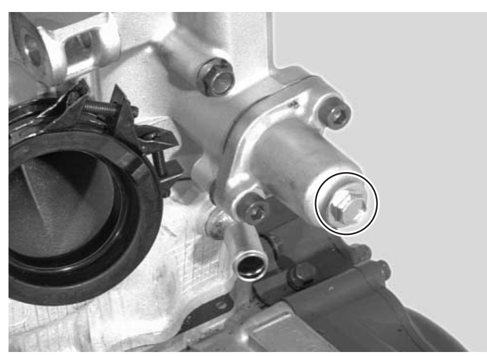
⚠ CAUTION

Use a new gasket to prevent oil leakage.

- Install the cam chain tension adjuster body to the cylinder, and then tighten the two Allen bolts to the specified torque.

Cam chain tension adjuster bolt:
10 N·m (1.0 kgf-m, 7.0 lb-ft)

- Turn the adjusting screw counterclockwise with a flat-bladed screwdriver to unlock.
- Tighten the cam chain tensioner spring holder bolt to the specified torque.



Cam chain tensioner spring holder bolt:
8 N·m (0.8 kgf-m, 6.0 lb-ft)

FUEL AND LUBRICATION SYSTEM

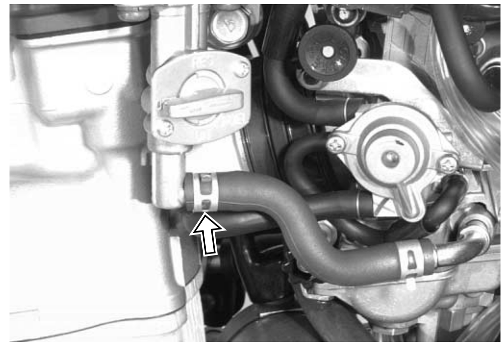
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FUEL TANK

REMOVAL

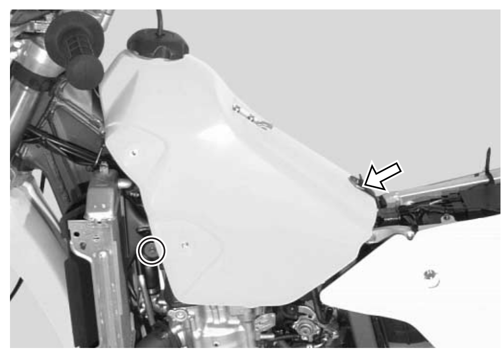
- Remove the seat and side covers. (☞ 6-2)
- Turn the fuel valve to the “OFF” position.
- Disconnect the fuel hose.



⚠ WARNING

Gasoline is highly flammable and explosive.
Keep heat, sparks, and flames away from gasoline.

- Remove the fuel tank.



REMOUNTING

Remount the fuel tank in the reverse order of removal.

FUEL VALVE
REMOVAL AND INSPECTION



- Remove the fuel tank. (☞ 4-2)
- Drain the fuel completely.
- Remove the fuel valve.

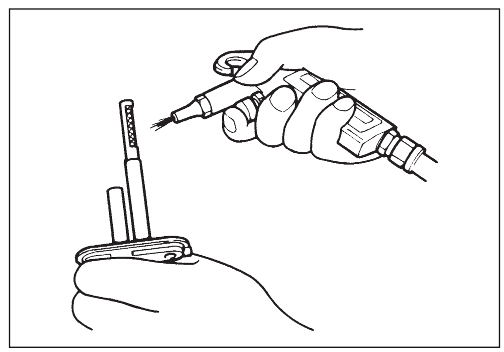
⚠ WARNING

∗ Gasoline is highly flammable and explosive. Keep heat, sparks, and flames away from gasoline.
∗ Replace the removed O-ring with a new one to prevent fuel leakage.

- Tighten the fuel valve mounting bolts to the specified torque.

Fuel valve mounting bolt: 4.4 N·m (0.44 kgf-m, 3.2 lb-ft)

FUEL STRAINER

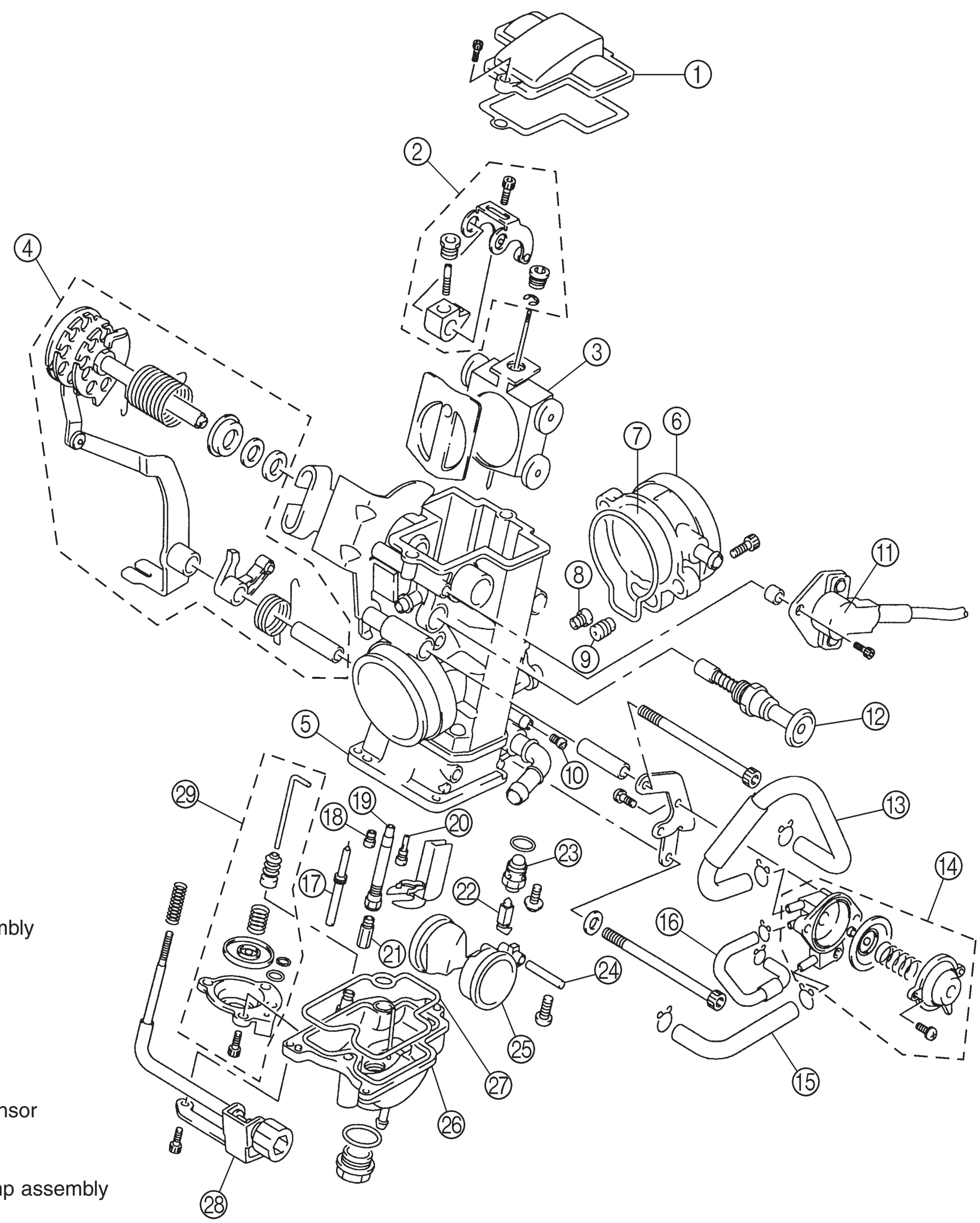


If the fuel strainer is dirty with sediment or rust, fuel will not flow smoothly and loss in engine power may result. Clean the fuel strainer with compressed air.

REMOUNTING

Remount the fuel valve in the reverse order of removal.

CARBURETOR
CONSTRUCTION



① Top cap
② Throttle valve lever
③ Throttle valve
④ Throttle lever assembly
⑤ Carburetor body
⑥ Intake joint
⑦ O-ring
⑧ Slow air jet
⑨ Main air jet
⑩ Air jet
⑪ Throttle position sensor
⑫ Starter plunger
⑬ Hose
⑭ Coasting richer pump assembly
⑮ Hose
⑯ Hose
⑰ Pilot screw
⑱ Starter jet
⑲ Needle jet
⑳ Pilot jet
㉑ Main jet
㉒ Needle valve
㉓ Valve seat
㉔ Float pin
㉕ Float
㉖ Float chamber
㉗ O-ring
㉘ Throttle stop screw
㉙ Accelerating pump assembly

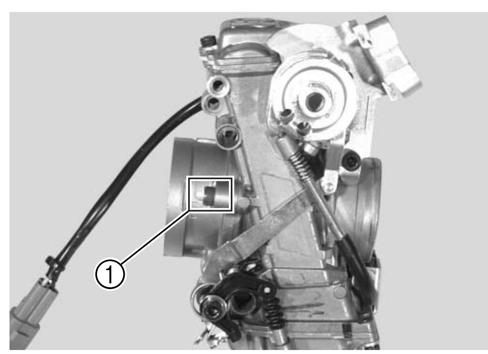
SPECIFICATIONS

ITEM		SPECIFICATION			
		DR-Z400		DR-Z400E	
		E-01	E-03, 28	E-01	E-03, 28
Carburetor type		KEIHIN FCR39H	←	←	←
Bore size		39 mm (1.5 in)	←	←	←
I.D. No.		29F0	29F1	29F3	29F4
Idle r/min		1800 ± 100 r/min	←	←	←
Float height		9.0 ± 1.0 mm (0.35 ± 0.04 in)	←	←	←
Main jet	(M.J.)	#165	#142	#165	#142
Main air jet	(M.A.J.)	#200	←	←	←
Jet needle	(J.N.)	OBDXP-4th	←	←	←
Needle jet	(N.J.)	2.9 mm (0.11 in)	←	←	←
Slow jet	(S.J.)	#45	←	←	←
Slow air jet	(S.A.J.)	#60	←	←	←
Air jet	(A.J.)	#90	←	←	←
Pilot screw	(P.S.)	1 1/2 turns out	←	←	←
Throttle cable play		2 – 4 mm (0.08 – 0.16 in)	←	←	←

E-01: General E-03: USA E-28: Canada

I.D. NO. LOCATION

Carburetor has an I.D. number ① printed on its body.

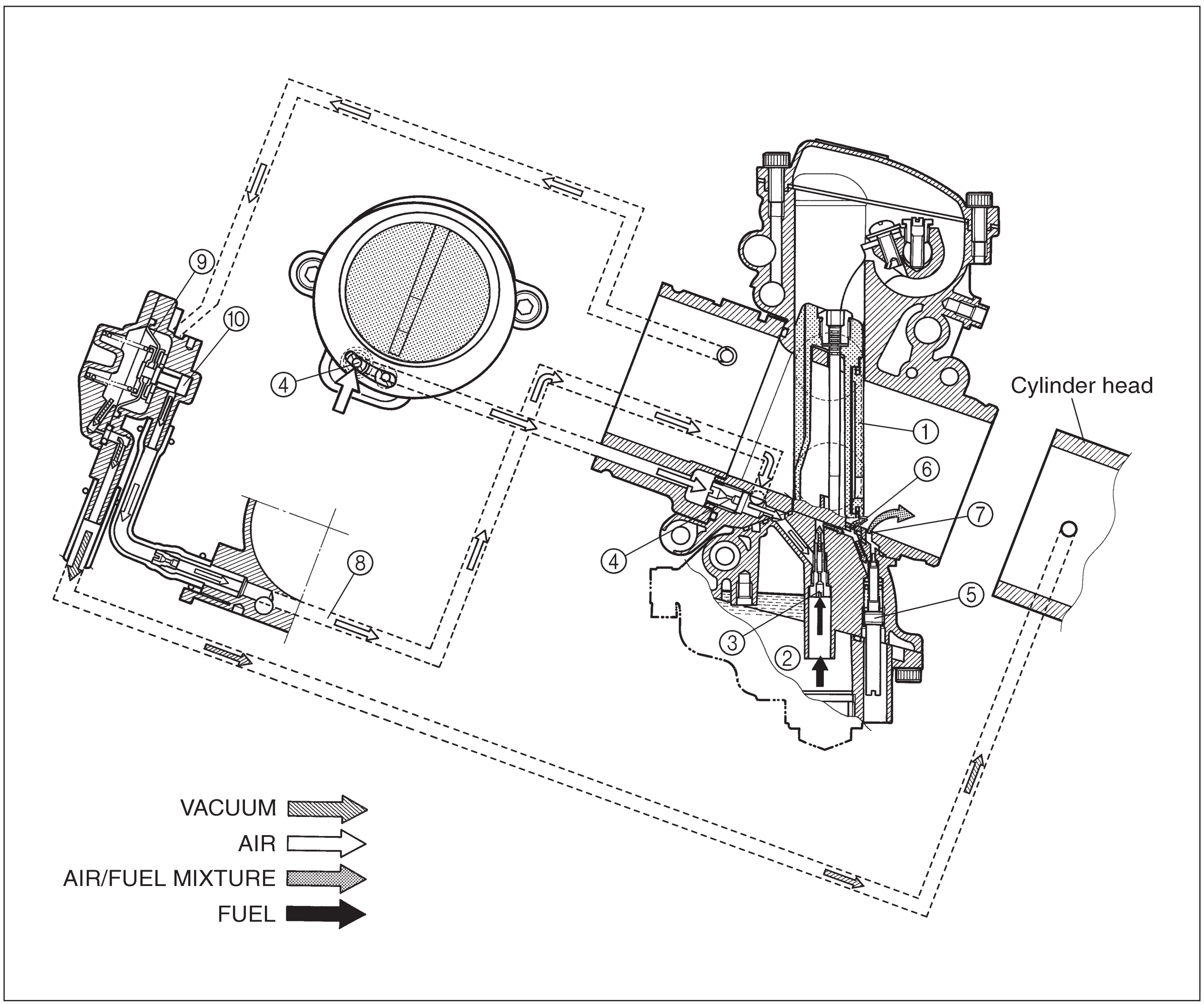


SLOW SYSTEM

This system supplies fuel during engine operation when the piston valve ① is fully closed or slightly open. The fuel from the float chamber ② is metered by the pilot jet ③ where it mixes with air coming in through the pilot air jet ④. This mixture, rich with fuel, then goes up through the pilot passage to the pilot screw ⑤. A part of the mixture is discharged into the main bore from the bypass ports ⑥. The remainder of the mixture is metered by the pilot screw ⑤ and sprayed into the main bore through the pilot outlet ⑦.

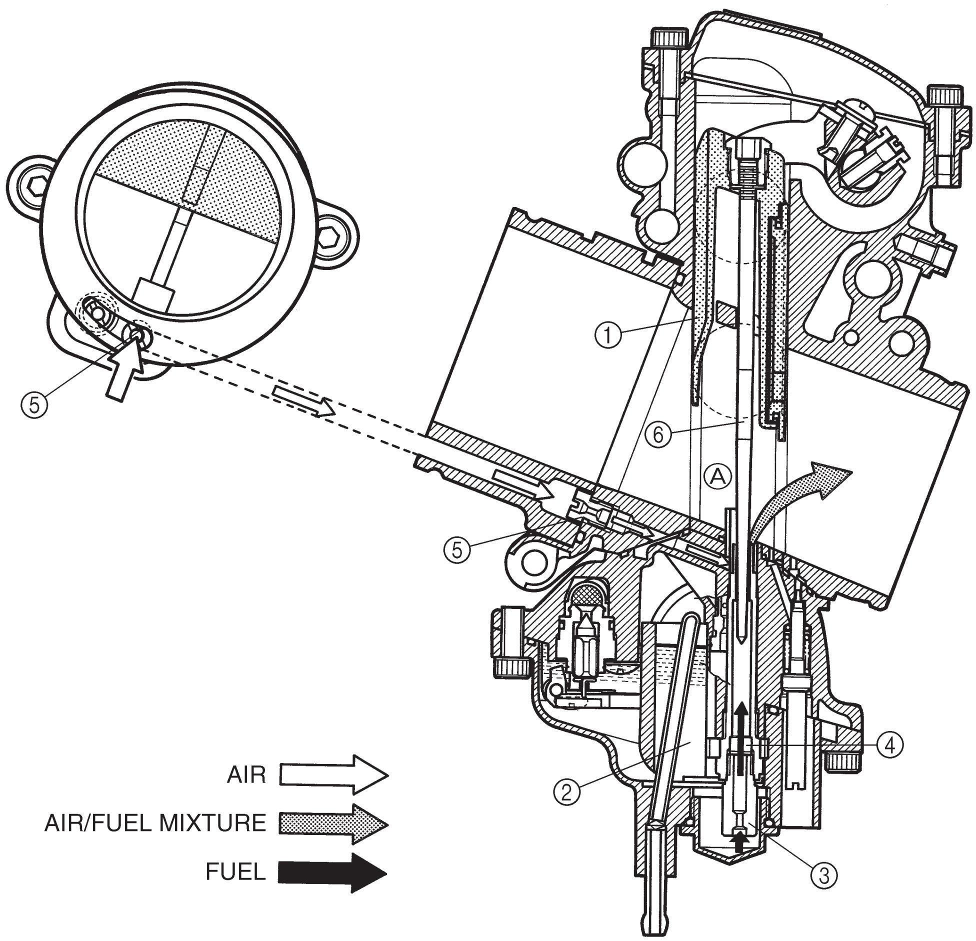
COASTING ENRICHMENT SYSTEM

The coasting enrichment system is included in the slow system. At normal operation, joining of the air from carburetor inlet side pilot air passage ⑧ which obtains the proper air/fuel mixture ratio. When the piston valve is closed suddenly, a high vacuum, which is generated in the main bore, is applied to the diaphragm ⑨. The valve ⑩ which interlocks with the diaphragm ⑨ closes the air passage ⑧, and thus, produces an air/fuel mixture that is rich with fuel. By controlling air flow in the pilot circuit, this system is able to keep combustion constant by varying the air/fuel mixture ratio.



MAIN SYSTEM

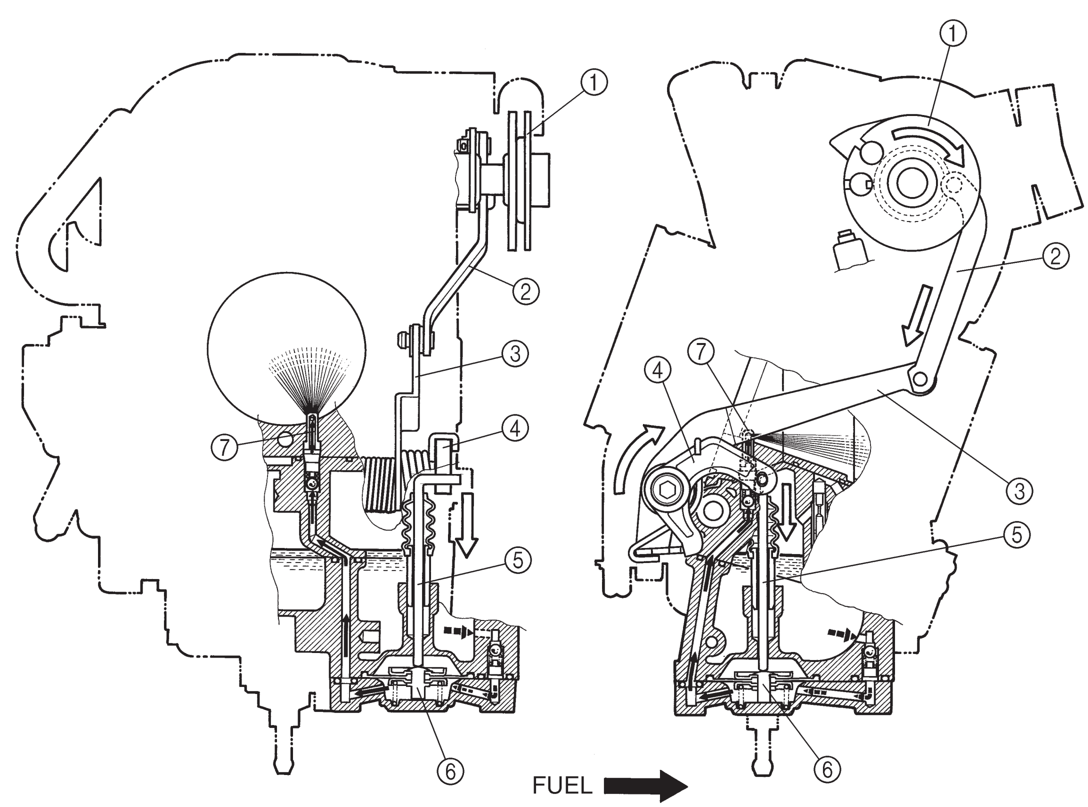
As the piston valve ① is opened, engine speed rises and vacuum in the venturi Ⓐ is increased.
The fuel in the float chamber ② is metered by the main jet ③. The metered fuel enters the needle jet ④, mixes with the air admitted through the main air jet ⑤, and then forms an emulsion.
The emulsified fuel then passes through the clearance between the needle jet ④ and jet needle ⑥, and is discharged into the venturi Ⓐ, in which it meets the main air stream being drawn by the engine.
Mixture proportioning is accomplished in the needle jet ④. The clearance through which the emulsified fuel must flow depends ultimately on the throttle position.



ACCELERATOR PUMP SYSTEM

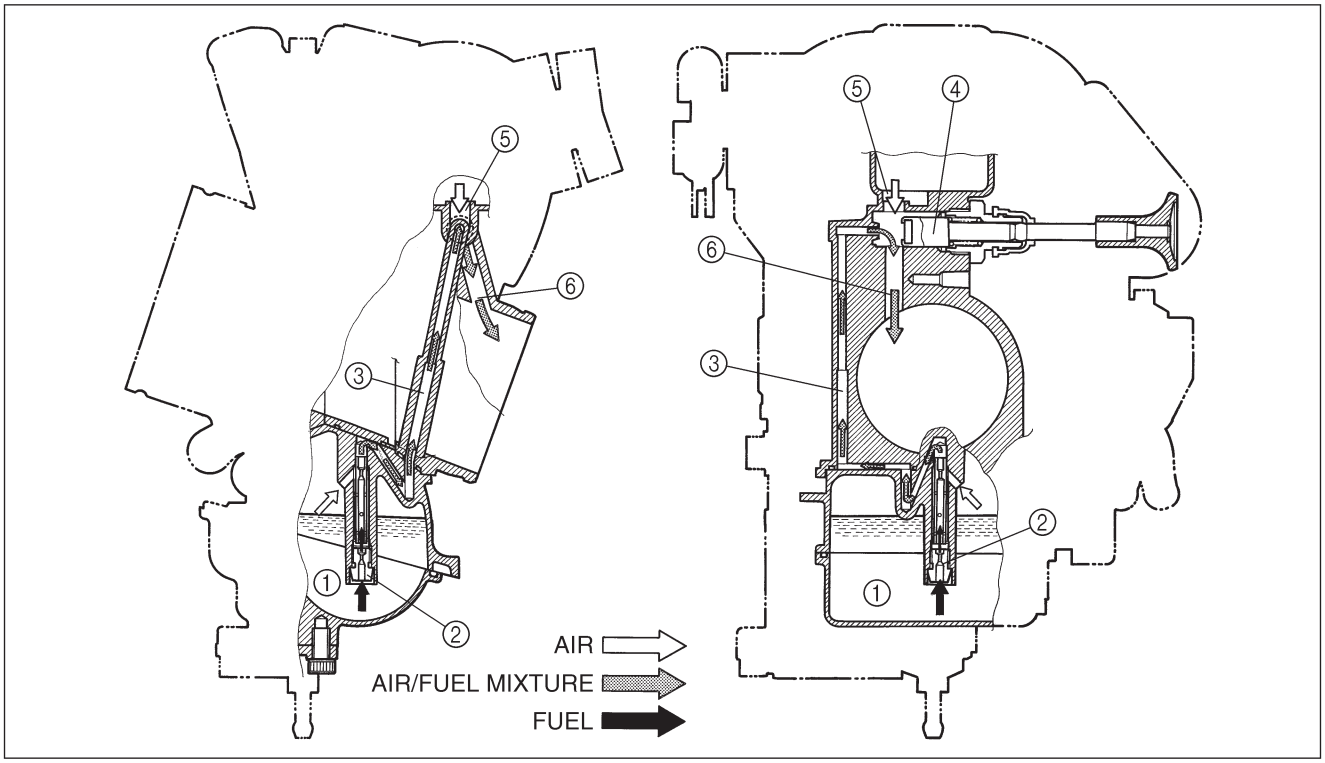
This system works only when the rider opens the throttle grip quickly as the accelerator pump sends the necessary amount of fuel to the carburetor bore to correct the air/fuel mixture ratio. When the rider opens the throttle grip quickly, the intake air volume increases and air velocity at the bottom of the piston valve is slow and sucking volume of fuel is less.

The piston valve lever ① pushes levers (②, ③), and lever ④ turns and pushes rod ⑤. The rod ⑤ pushes the plunger ⑥. This plunger pushes out the fuel through the outlet pipe ⑦, spraying fuel into the main bore.



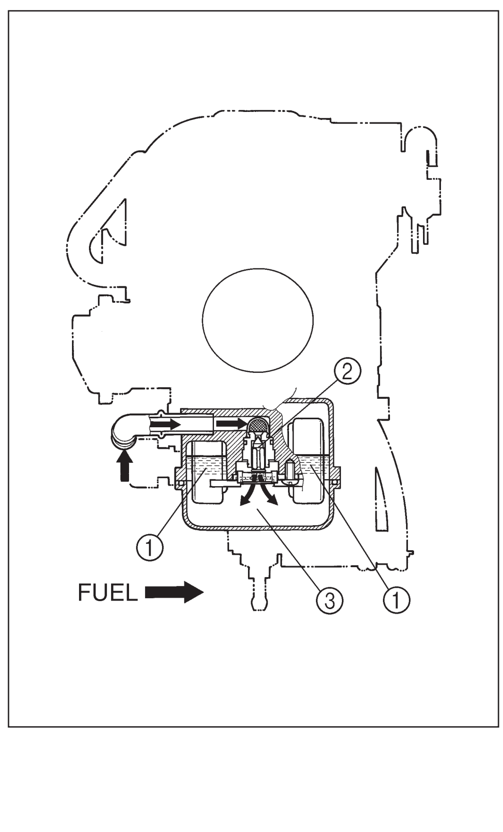
STARTER (ENRICHER) SYSTEM

Pulling the starter (enricher) knob causes fuel to be drawn into the starter circuit from the float chamber ①. The starter jet ② meters this fuel, which then flows into the fuel passage ③ and mixes with the air coming from the float chamber. The mixture, rich in fuel, reaches starter plunger ④ and mixes again with the air coming through a passage ⑤ extending from behind the diaphragm.
The two successive mixtures of the fuel with the air provide the proper air/fuel mixture for starting. This occurs when the mixture is sprayed out through the starter outlet port ⑥ into the main bore.



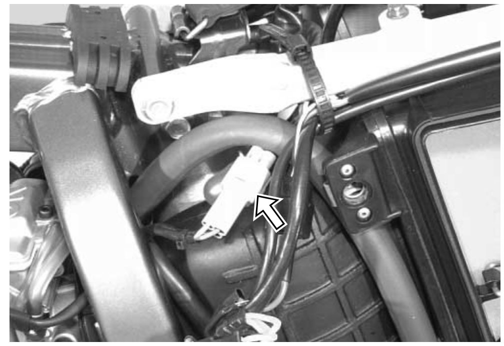
FLOAT SYSTEM

The float ① and needle valve ② work in conjunction with one another. As the float moves up and down, so does the needle valve.
When there is a high fuel level in the float chamber ③, the float rises and the needle valve pushes against the valve seat. When this occurs, no fuel enters the float chamber.
As the fuel level falls the float lowers and the needle valve unseats itself; admitting fuel into the float chamber.
In this manner, the needle valve admits and shuts off fuel to maintain the appropriate fuel level inside the float chamber.

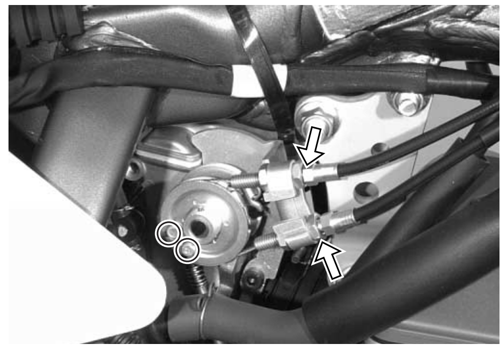


REMOVAL

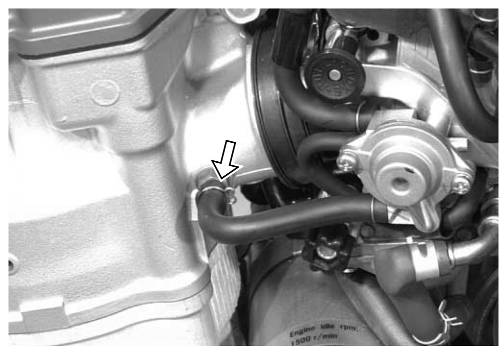
- Remove the fuel tank. (☞ 4-2)
- Remove the left frame cover. (☞ 6-2)
- Disconnect the throttle position sensor coupler.



- Disconnect the throttle cables.



- Disconnect the coasting richer pump hose.

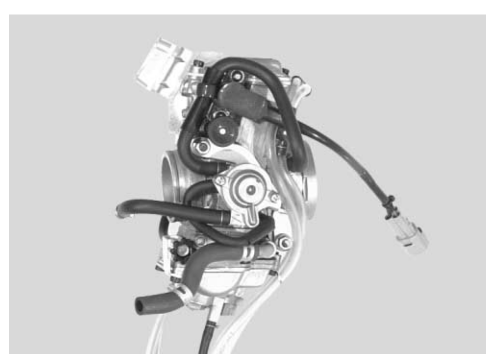


- Loosen the carburetor clamp screws, and then remove the carburetor assembly.

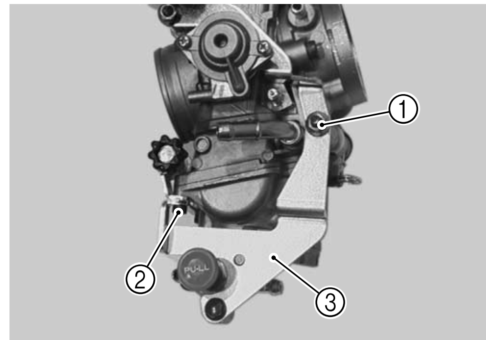


DISASSEMBLY

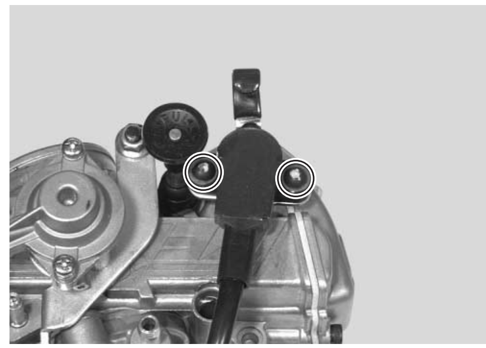
- Remove the carburetor hoses.



- First, remove the air valve mounting nut ①, and then remove the air valve mounting bolt ② and air valve assembly ③. (DR-Z400)



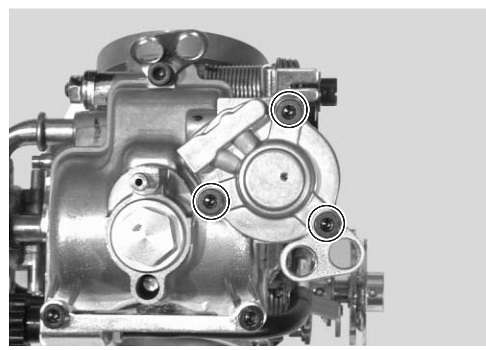
- Remove the throttle position sensor.



- Remove the accelerating pump assembly.

⚠ CAUTION

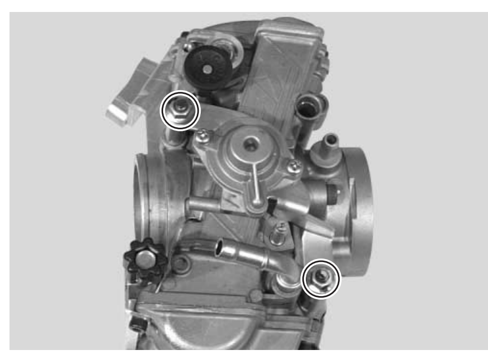
Replace the removed O-ring with a new one to prevent fuel leakage.



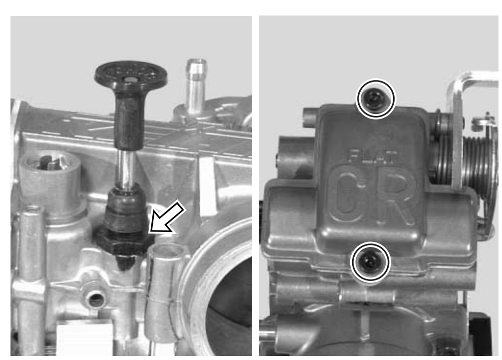
- Remove the coasting richer pump assembly.

⚠ CAUTION

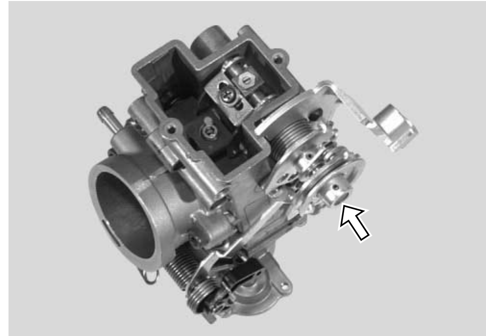
Replace the removed O-ring with a new one to prevent fuel leakage.



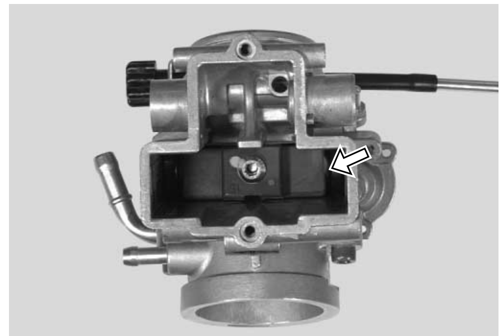
- Remove the starter plunger.
- Remove the top cap.



- Remove the throttle lever assembly.



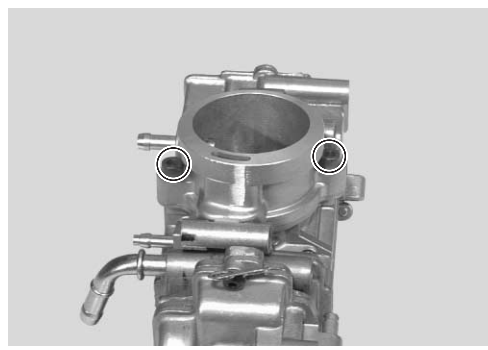
- Remove the throttle valve.



- Remove the intake joint.

⚠ CAUTION

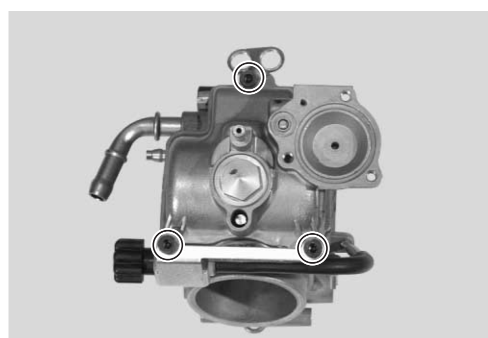
Replace the removed O-ring with a new one to prevent air leakage.



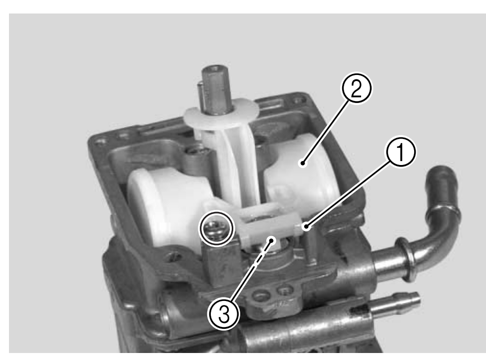
- Remove the float chamber.

⚠ CAUTION

Replace the removed O-ring with a new one to prevent fuel leakage.

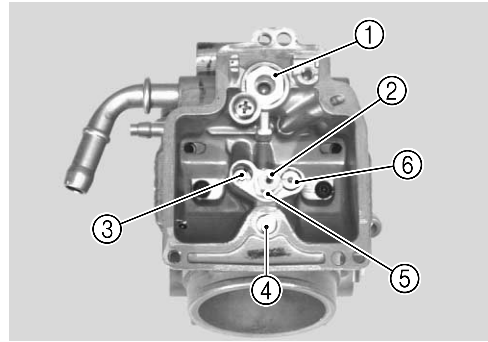


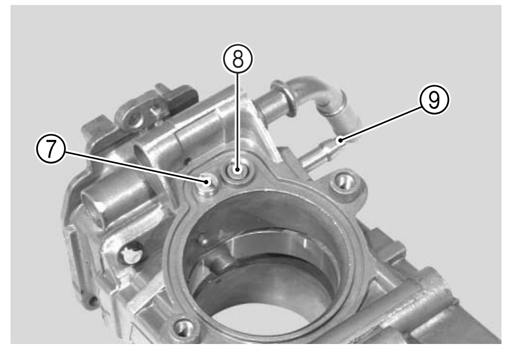
- Remove the float pin ①, float ②, and needle valve ③.



- Remove the following parts.

① Valve seat
② Main jet
③ Slow jet
④ Pilot screw
⑤ Needle jet
⑥ Starter jet
⑦ Main air jet
⑧ Slow air jet
⑨ Air jet



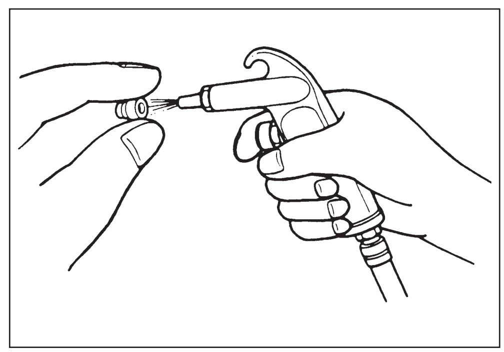


NOTE:
Before removing the pilot screw ④, its setting must be determined. Slowly turn the pilot screw clockwise and count the number of turns until it is lightly seated. Make a note of how many turns were made.
When reassembling the pilot screw, you will want to set the pilot screw to its original position.

⚠ CAUTION

Do not use wire to clean the passageways, valve seat, and jets. Use compressed air only.

CLEANING



⚠ WARNING

Some carburetor cleaning chemicals, especially dip-type soaking solutions, are very corrosive and must be handled carefully. Always follow the chemical manufacturer's instructions for proper use, handling and storage.

- Clean all jets with a spray-type carburetor cleaner and dry them using compressed air.
- Clean all circuits of the carburetor thoroughly—not just the perceived problem area. Clean the circuits in the carburetor body with a spray-type cleaner. If necessary, soak each circuit in a dip-type cleaning solution to loosen dirt and varnish. Dry the carburetor body using compressed air.

⚠ CAUTION

Do not use wire to clean the passageways, valve seat, and jets. If the components cannot be cleaned with a spray-type cleaner it may be necessary to soak the them in a dip-type cleaning solution. Always follow the chemical manufacturer's instructions for proper use and cleaning of the carburetor components.

- After cleaning, reassemble the carburetor with new O-rings.

⚠ CAUTION

Replace the removed O-rings with new ones.

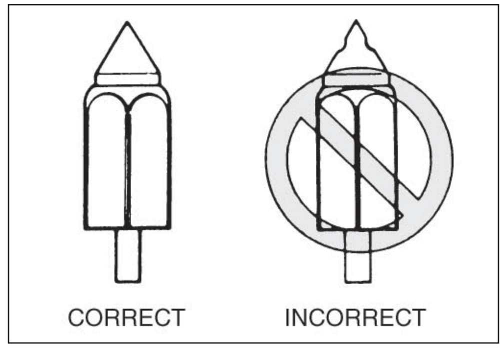
INSPECTION

Check the following items for any damage or clogging. If any damages are found, replace the damaged parts with new ones.

* Pilot jet
* Main jet
* Main air jet
* Pilot air jet 1
* Pilot air jet 2
* Needle jet air bleeding hole
* Float
* Needle valve
* Valve seat
* Jet needle
* Piston valve
* Starter (enricher) jet
* O-ring
* Throttle valve
* Diaphragm
* Pilot outlet and bypass ports

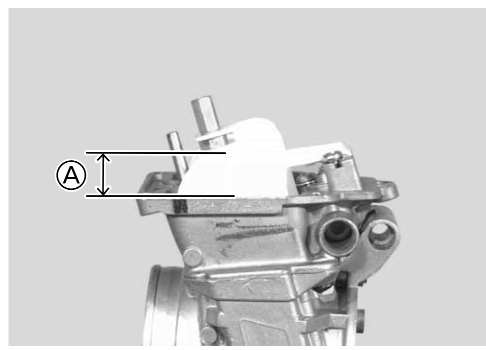
NEEDLE VALVE INSPECTION

If foreign matter is caught between the valve seat and the needle valve, the gasoline will continue flowing and overflow. If the valve seat and needle valve are worn beyond the permissible limits, similar trouble will occur. Conversely, if the needle valve sticks, the gasoline will not flow into the float chamber.
Clean the float chamber and float parts with gasoline. If the needle valve is worn as shown, replace it and the valve seat a new one.
Clean the fuel passage of the mixing chamber using compressed air.



FLOAT HEIGHT ADJUSTMENT

To check the float height, turn the carburetor upside down.
Measure the float height Ⓐ while the float arm is just contacting the needle valve using vernier calipers.
Bend the tongue as necessary to bring the float height Ⓐ to the specified level.

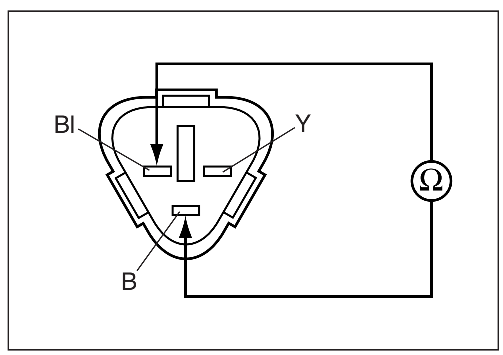


TOOL **09900-20101: Vernier calipers**

DATA **Float height Ⓐ: 9.0 ± 1.0 mm (0.35 ± 0.04 in)**

THROTTLE POSITION SENSOR INSPECTION

Measure the resistance between the terminals as shown in the illustration.



DATA **Throttle position sensor resistance:**
Approximately 5 kΩ

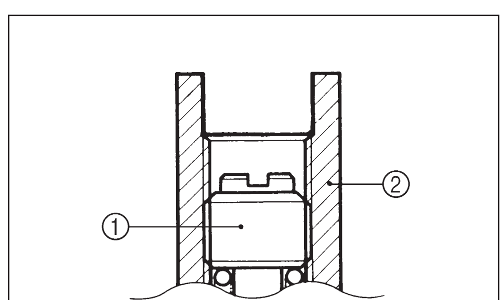
NOTE:
When performing this test, it is not necessary to remove the throttle position sensor.

REASSEMBLY

Reassemble the carburetor in the reverse order of disassembly. Pay special attention to the following points:

PILOT SCREW

● After cleaning, install the pilot screw ① to the original setting by turning the screw in until it lightly seats, and then backing it out the same number of turns counted during disassembly.



① Pilot screw ② Carburetor body

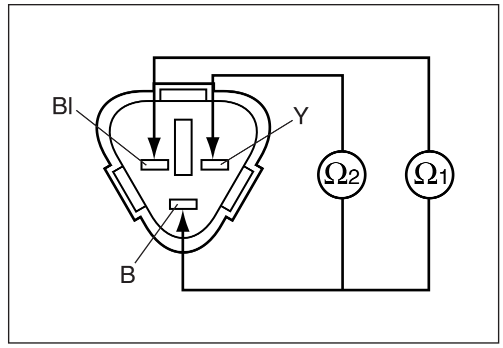
⚠ CAUTION

Replace the removed O-ring with a new one.

THROTTLE POSITION SENSOR INSTALLATION

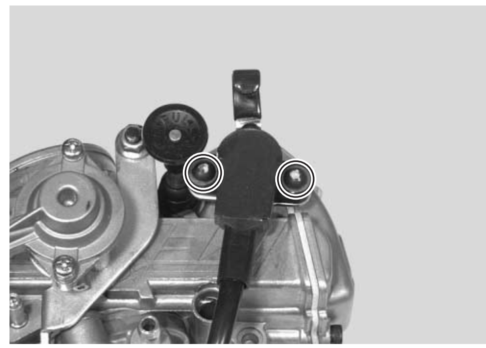
Install the throttle position sensor as described below.

- Measure the resistance Ω1 between the throttle position sensor terminals as shown in the illustration.



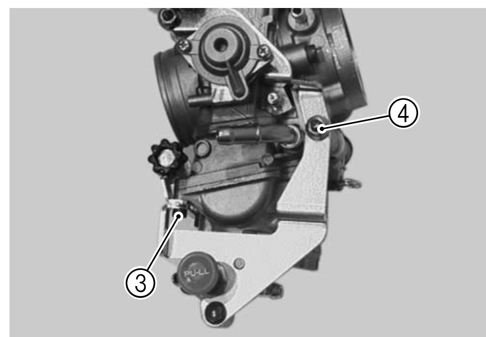
DATA Throttle position sensor resistance Ω1:
Approximately 5 kΩ

- Measure the resistance Ω2 between the throttle position sensor terminals as shown in the illustration.
- Fully open the throttle valve with the throttle lever.
- Position the throttle position sensor until resistance Ω2 is 3.09 – 4.63 kΩ.
- When the resistance Ω2 is within specification, tighten the throttle position sensor mounting screws.

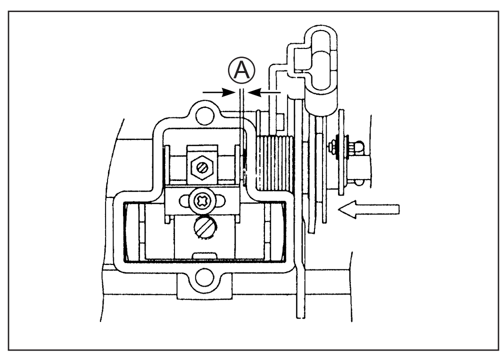


DATA Throttle position sensor resistance Ω2:
3.09 – 4.63 kΩ

- Install the air valve assembly.
- First tighten the bolt ③ and then tighten the nut ④. (DR-Z400)



Keep the clearance Ⓐ (0.5 – 0.7 mm) between rink arm and carburetor body when pushing the throttle lever as shown.
Ⓐ: Clearance 0.5 – 0.7 mm
If the clearance is out of specification, adjust the clearance.

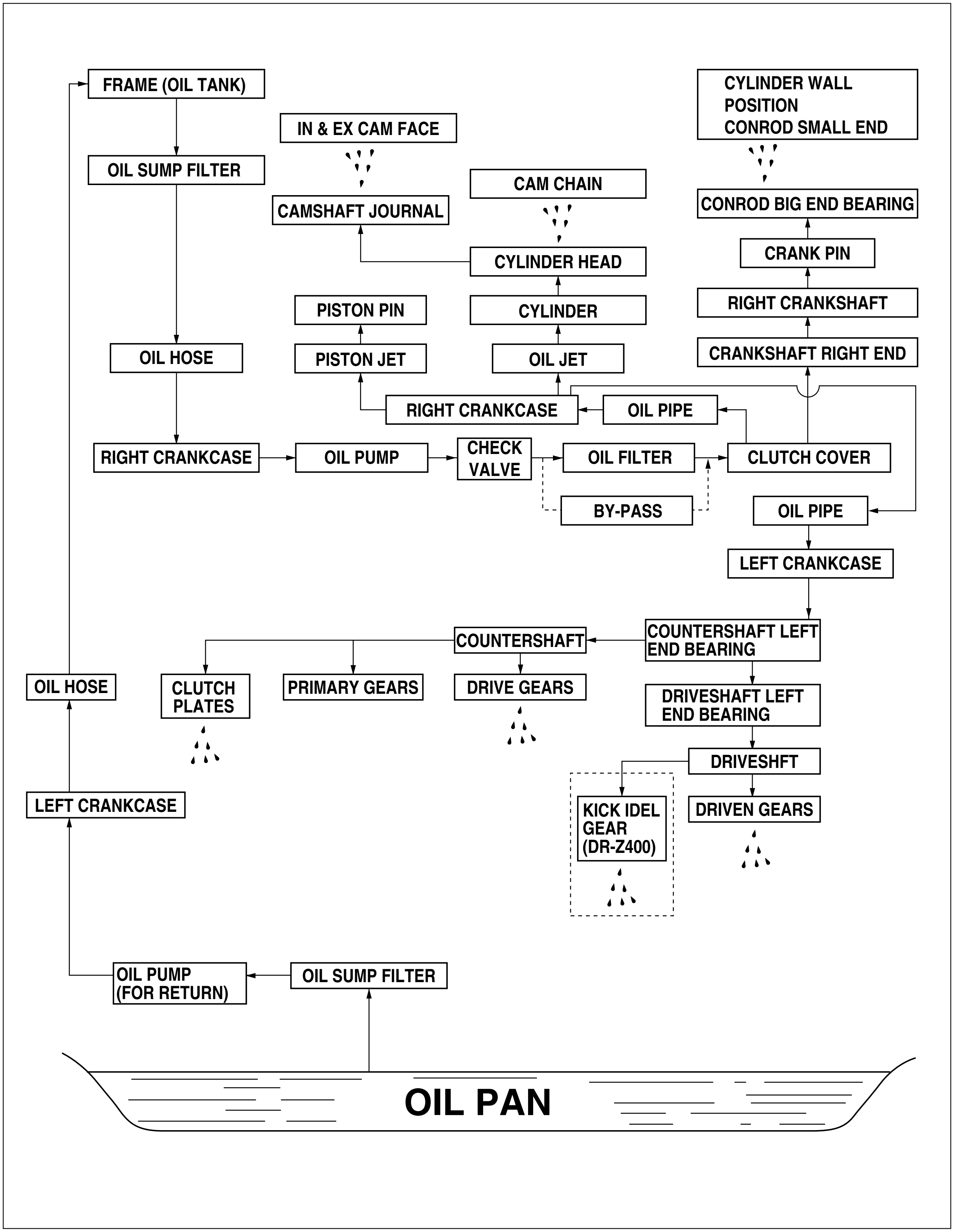


REMOUNTING

Remount the carburetor assembly in the reverse order of removal. After the carburetor assembly has been remounted onto the engine perform the following adjustments:

* Throttle cable play .... ☞ 2-13
* Engine idle speed .... ☞ 2-14

LUBRICATION SYSTEM
ENGINE LUBRICATION SYSTEM CHART



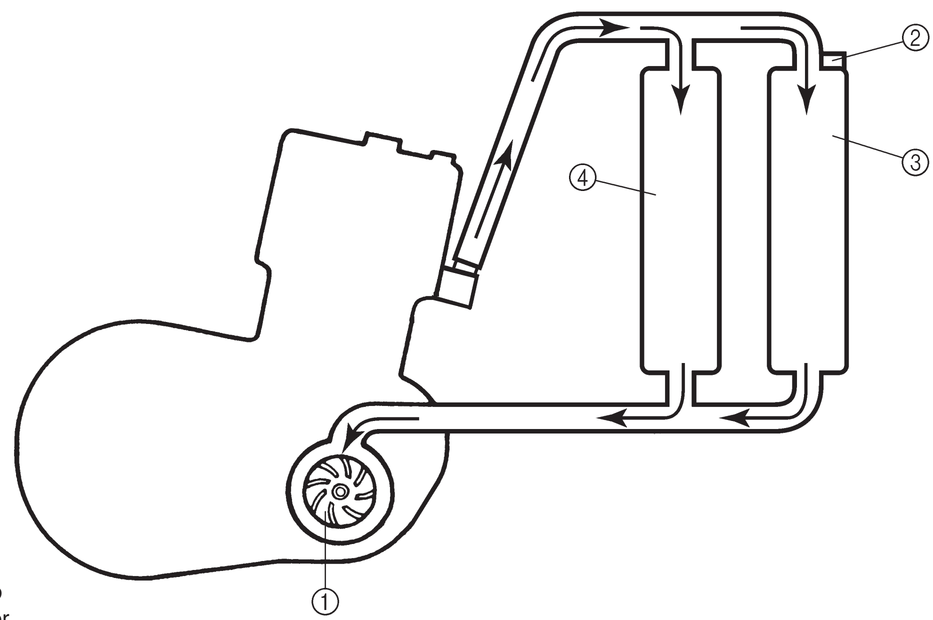
COOLING SYSTEM

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RADIATOR 5- 5
INSPECTION 5- 5
REMOVAL 5- 6
REMOUNTING 5- 6

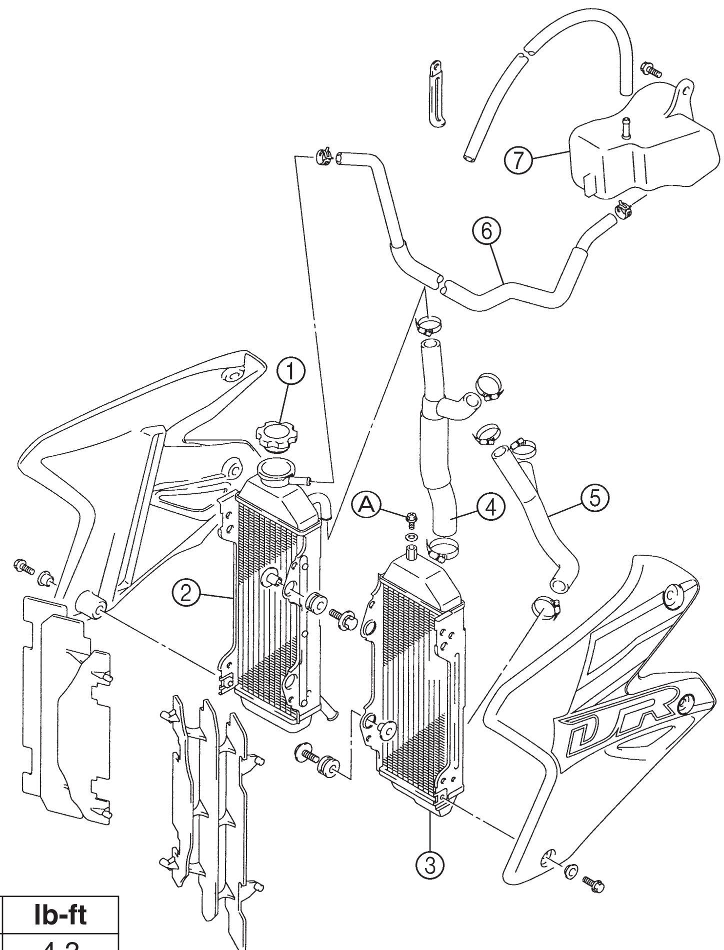
COOLING SYSTEM
DESCRIPTION

The engine is cooled by a forced flow of engine coolant that circulates through jackets, which are formed in the cylinder and cylinder head, and through the radiator.
A high-capacity centrifugal pump is used for the water pump and a tube-and-fin type aluminum radiator, which is characterized by lightness in weight and good heat dissipation, is used.
Refer to the following illustration for the routing of the cooling system.



① Impeller
② Radiator cap
③ Right radiator
④ Left radiator

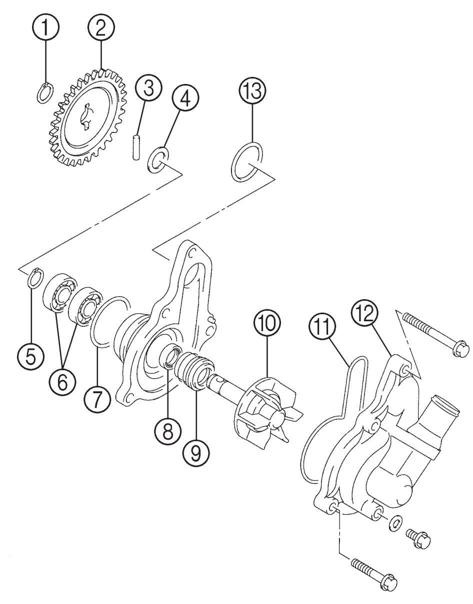
CONSTRUCTION



① Radiator cap
② Radiator (R)
③ Radiator (L)
④ Radiator inlet hose
⑤ Radiator outlet hose
⑥ Overflow hose
⑦ Overflow tank

Ⓐ Air bleeder bolt

ITEM	N·m	kgf-m	lb-ft
Ⓐ	6.0	0.6	4.3



① Circlip
② Water pump driven gear
③ Pin
④ Washer
⑤ Circlip
⑥ Bearing
⑦ O-ring
⑧ Oil seal
⑨ Mechanical seal
⑩ Impeller
⑪ O-ring
⑫ Water pump cover
⑬ O-ring

ENGINE COOLANT

At the time of manufacture, the cooling system is filled with a 50:50 mixture of distilled water and ethylene glycol antifreeze. This mixture will provide optimum corrosion and heat protection, and will protect the cooling system from freezing at above –31°C (–24°F).

If the motorcycle is to be exposed to temperatures below –31°C (–24°F), the percentage of antifreeze should be increased to 55% or 60%, according to figure 2.

- The characteristics of different antifreeze vary; therefore, be sure to use the specified antifreeze.

DATA **Engine coolant: Mix antifreeze designed for aluminum radiators with distilled water only.**
Water/antifreeze mixture ratio: 50:50 – 40:60

CAUTION

* **Mix a high quality ethylene glycol based antifreeze with distilled water only. Do not mix an alcohol based antifreeze or different brands of antifreeze.**
* **The percentage of antifreeze in the coolant should be between 50 to 60%. If the percentage of antifreeze is above or below this range the coolant's frost protection and rust-inhibiting capabilities will be reduced. Always keep the antifreeze content above 50% even if the atmospheric temperature does not go below the freezing point.**

DATA **Engine coolant capacity: 1 250 ml (1.3 US qt, 1.1 Imp qt)**

Antifreeze density	Freezing point
50%	–31°C (–24°F)
55%	–40°C (–40°F)
60%	–55°C (–67°F)

WARNING

* **Do not open the radiator cap when the engine is hot, as you may be injured by escaping hot liquid or vapor.**
* **The engine must be cool before servicing the cooling system.**
* **Engine coolant may be harmful if swallowed or if it comes in contact with the skin or eyes. If engine coolant gets into the eyes or contacts the skin, flush the eyes or wash the skin thoroughly, with plenty of water. If engine coolant is swallowed, induce vomiting and call a physician immediately.**

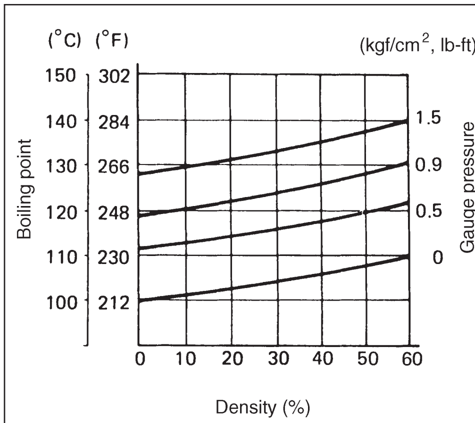


Fig. 1 Engine coolant density-boiling point

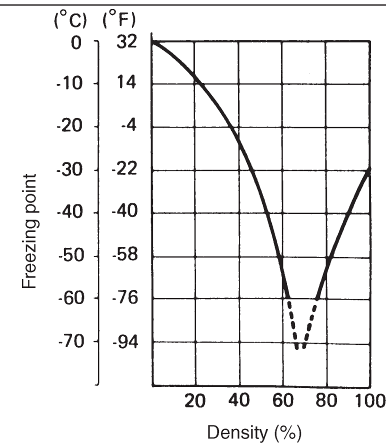
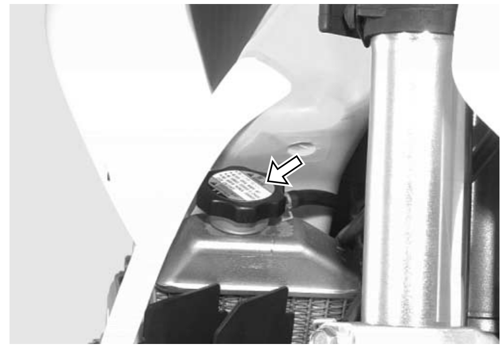


Fig. 2 Engine coolant density-freezing point

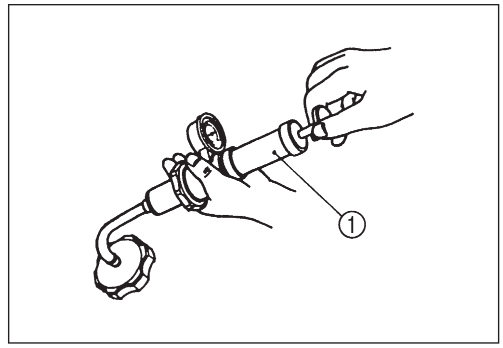
RADIATOR

INSPECTION

RADIATOR



Before removing the radiator and draining the engine coolant, check the following.
Check the cooling system for leaks with a radiator tester ①.
Remove the radiator cap and connect the radiator tester to the filler. Pressurize the cooling system with 120 kPa (1.2 kgf/cm², 17 psi) of pressure, and then check if it holds the pressure for 10 seconds. If the cooling system does not hold the pressure for at least 10 seconds, check the entire cooling system for leaks. If a leak is found, replace the damaged part.

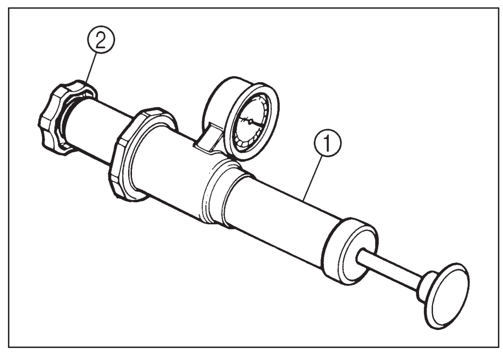


⚠ WARNING

* **Do not open the radiator cap when the engine is hot, as you may be injured by escaping hot liquid or vapor.**
* **When removing the radiator cap tester, put a rag on the filler to prevent the engine coolant from spraying out.**

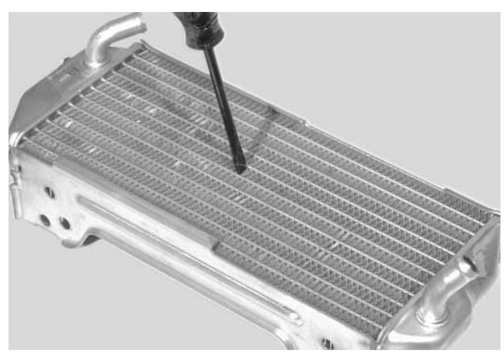
⚠ CAUTION

Do not exceed the radiator cap release pressure, or the radiator cap and subsequently the radiator, can be damaged.



Check the radiator cap ② using a radiator tester ①.
Attach the radiator cap to the radiator tester as shown. Slowly apply pressure to the radiator cap; do not exceed 95 – 125 kPa (0.95 – 1.25 kgf/cm², 13.5 – 17.8 psi). If the radiator cap does not hold the pressure for at least 10 seconds, replace it with a new one.

DATA **Radiator cap release pressure: 95 – 125 kPa (0.95 – 1.25 kgf/cm², 13.5 – 17.8 psi)**



Check the radiator for dirt and other foreign materials. If any are found, clean the radiator using compressed air. Also, repair any bent or dented fins using a small screwdriver.
Check all the water hoses for cracks, flat spots, or loose connections. Replace any damaged hoses and properly tighten any loose connections.

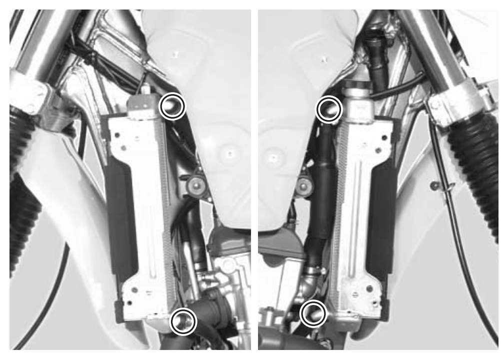
REMOVAL

- Remove the side covers. (☞ 6-2)
- Drain the engine coolant. (☞ 2-15)

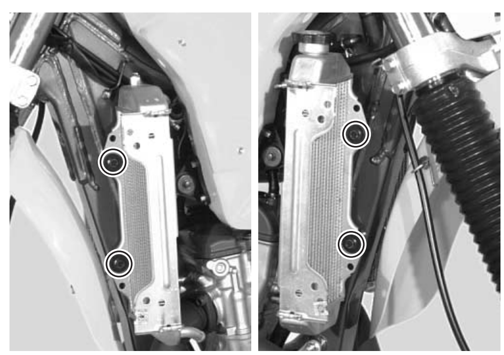
⚠ WARNING

- **∗ Do not open the radiator cap when the engine is hot, as you may be injured by escaping hot liquid or vapor.**
- **∗ The engine must be cool before servicing the cooling system.**
- **∗ Engine coolant may be harmful if swallowed or if it comes in contact with the skin or eyes. If engine coolant gets into the eyes or contacts the skin, flush the eyes or wash the skin thoroughly, with plenty of water. If engine coolant is swallowed, induce vomiting and call a physician immediately.**

- Disconnect the radiator hoses.



- Remove the radiator.



REMOUNTING

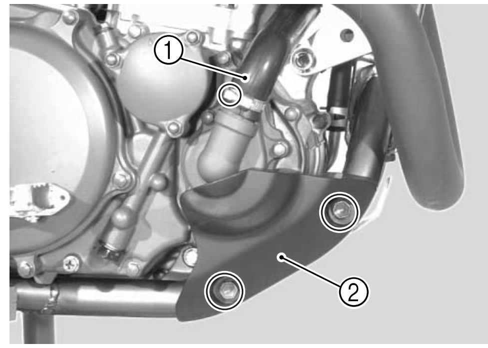
Remount the radiator in the reverse order of removal. After remounting the radiator, be sure to add engine coolant. (☞ 2-15)

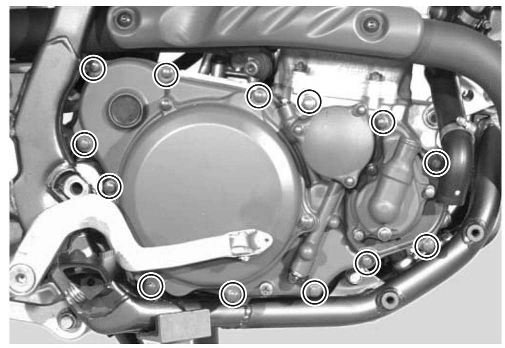
WATER PUMP
REMOVAL AND DISASSEMBLY

- Drain the engine coolant. (☞ 2-15)
- Drain the engine oil. (☞ 2-11)

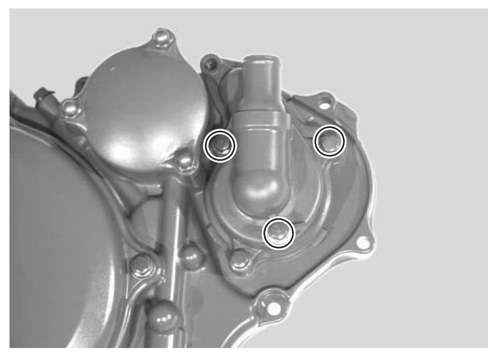
⚠ WARNING

- * **Do not open the radiator cap when the engine is hot, as you may be injured by escaping hot liquid or vapor.**
- * **The engine must be cool before servicing the cooling system.**
- * **Engine coolant may be harmful if swallowed or if it comes in contact with the skin or eyes. If engine coolant gets into the eyes or contacts the skin, flush the eyes or wash the skin thoroughly, with plenty of water. If engine coolant is swallowed, induce vomiting and call a physician immediately.**

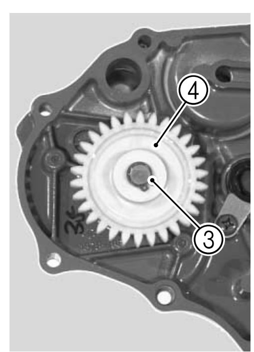


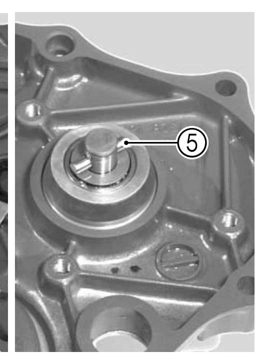


- Disconnect the radiator hose ① and right engine side cover ②.
- Remove the right crankcase cover.
- Remove the water pump cover.

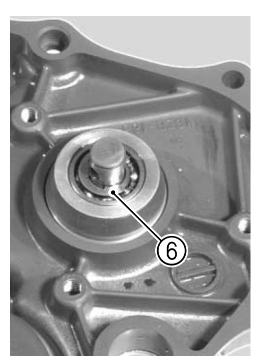


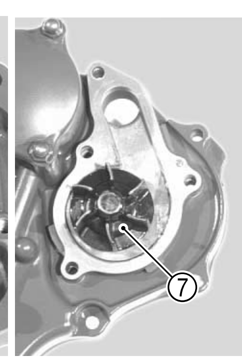
- Remove the circlip ③, water pump driven gear ④ and pin ⑤.





- Remove the E-ring ⑥ and impeller ⑦.

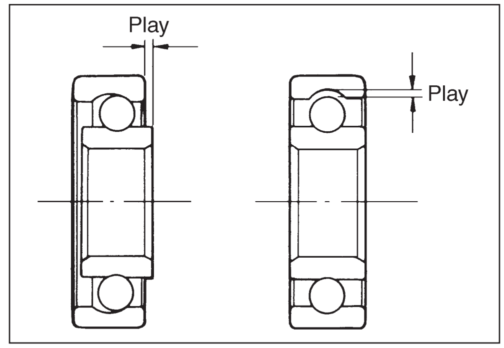




INSPECTION

WATER PUMP BEARING

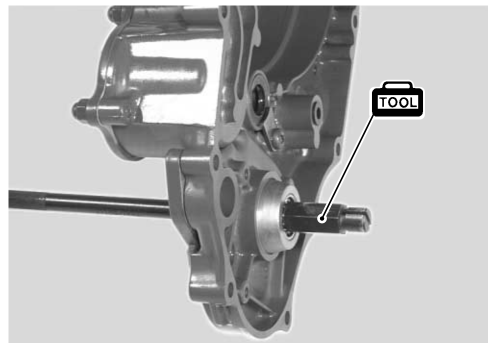
Inspect the inner race play of the water pump bearing by hand while it is in the water pump housing. Rotate the inner race by hand to inspect it for abnormal noise and smooth rotation. If abnormal noise occurs or if rough movement is noted, replace the water pump bearing with a new one.



Remove the water pump bearing using the special tool, as follows:

- Insert the bearing remover attachment into the water pump bearing.
- Install the wedge from the opposite side and lock it into the slit of the bearing remover attachment.
- Drive out the water pump bearing by knocking the wedge bar.

TOOL **09941-50111: Bearing remover**



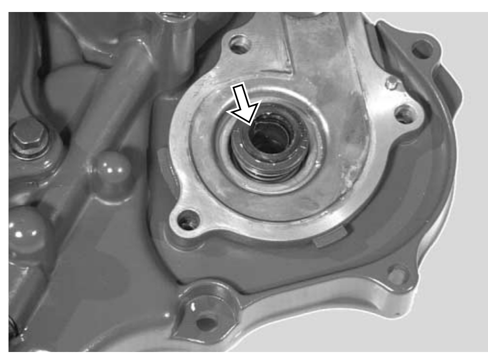
⚠ CAUTION

Replace the removed bearing with a new one.

MECHANICAL SEAL

Visually inspect the mechanical seal for damage. If any damages are found, replace the mechanical seal with a new one.

- Remove the mechanical seal ①.



⚠ CAUTION

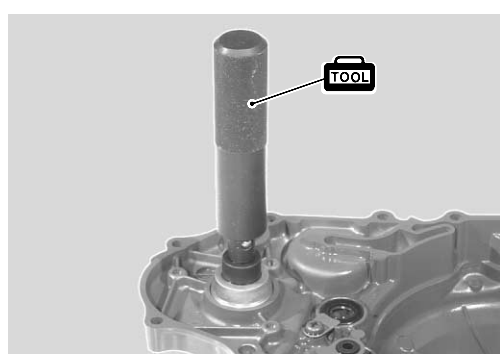
Replace the removed mechanical seal with a new one.

REASSEMBLY

Reassemble and remount the water pump in the reverse order of removal and disassembly. Pay attention to the following points:

- Install the water pump bearings using the special tool.

TOOL **09913-70210: Bearing installer set**



- Apply SUZUKI SUPER GREASE “A” to the new O-rings.



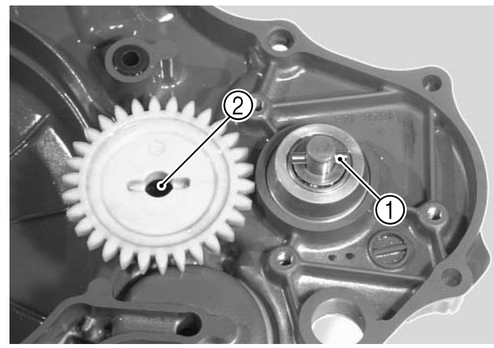
For USA

99000-25030: SUZUKI SUPER GREASE “A”

For the other countries

99000-25010: SUZUKI SUPER GREASE “A”

- When installing the water pump driven gear align the pin ① with the groove ②.
- After installing the water pump, be sure to add engine coolant. (☞ 2-15)

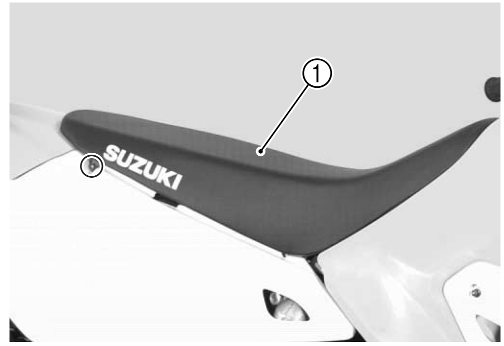


CHASSIS

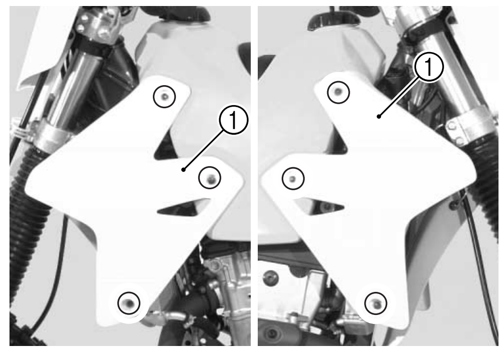
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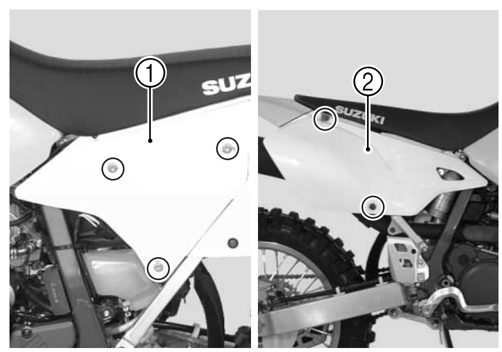
EXTERIOR PARTS
REMOVAL
SEAT
- Remove the seat ①.



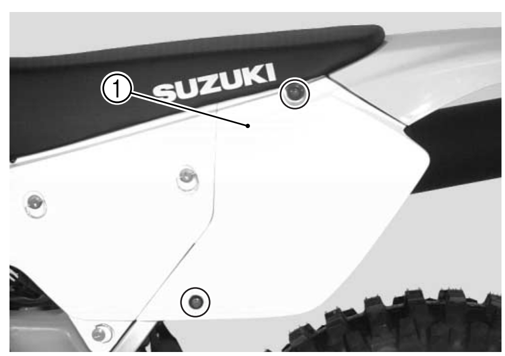
SIDE COVERS
- Remove the left and right side covers ①.



FRAME COVERS
- Remove the left frame cover ① and right frame cover ②.



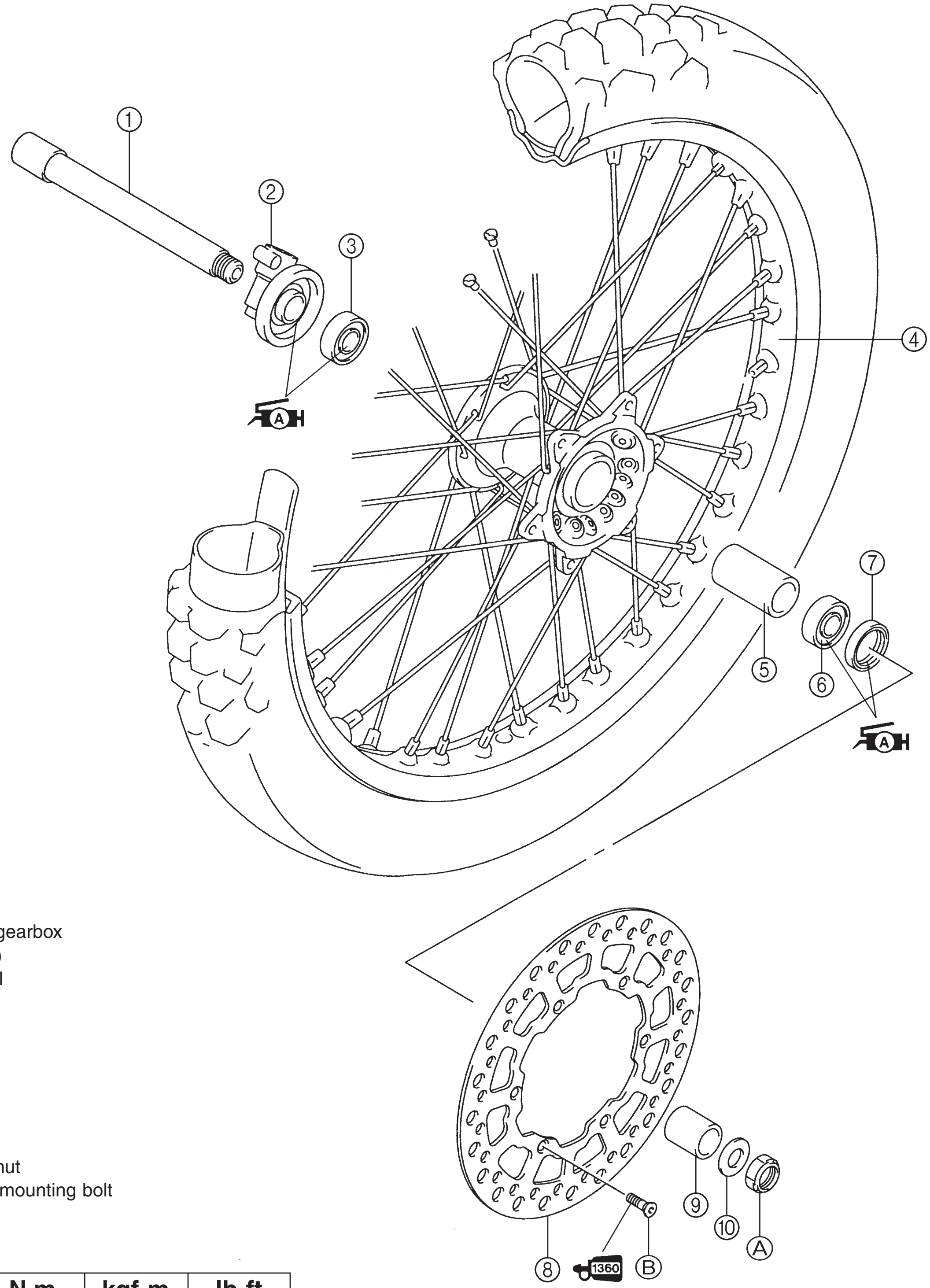
BATTERY COVER
- Remove the battery cover ①.



REMOUNTING

Remount the seat, side covers, frame covers, and battery cover in the reverse order of removal.

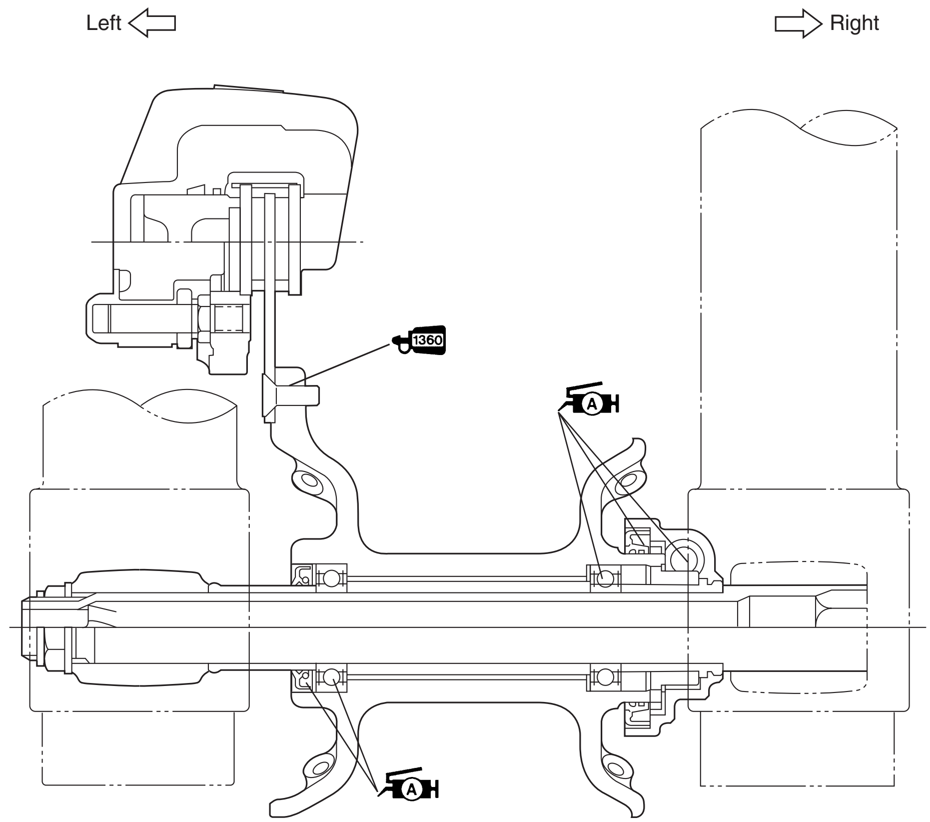
FRONT WHEEL
CONSTRUCTION

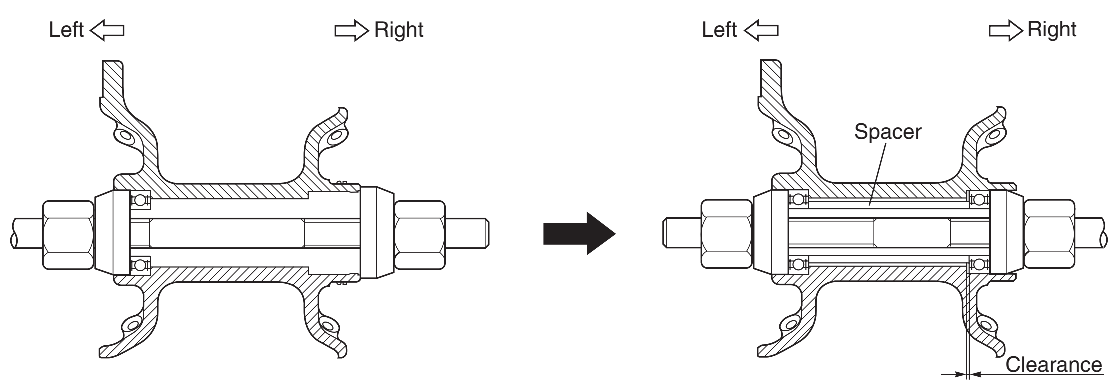


① Front axle
② Odometer gearbox
③ Bearing (R)
④ Front wheel
⑤ Spacer
⑥ Bearing (L)
⑦ Dust seal
⑧ Brake disc
⑨ Spacer
⑩ Washer

Ⓐ Front axle nut
Ⓑ Brake disc mounting bolt

ITEM	N·m	kgf-m	lb-ft
Ⓐ	42	4.2	30.5
Ⓑ	10	1.0	7.0


Left
Right
1360
A
A

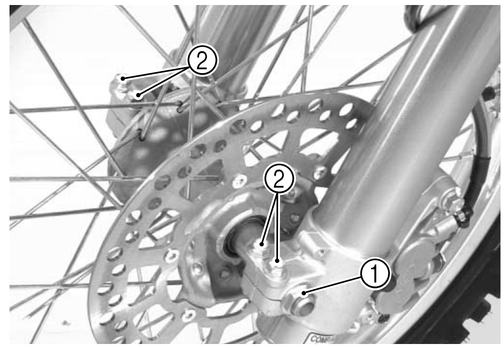

Left
Right
Left
Right
Spacer
Clearance

REMOVAL AND DISASSEMBLY

- Disconnect the odometer cable.



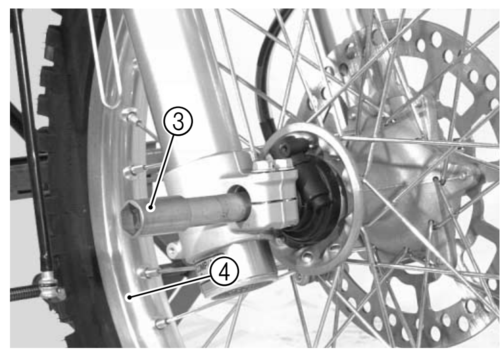
- Remove the front axle nut ① and loosen the front axle pinch bolts ②.



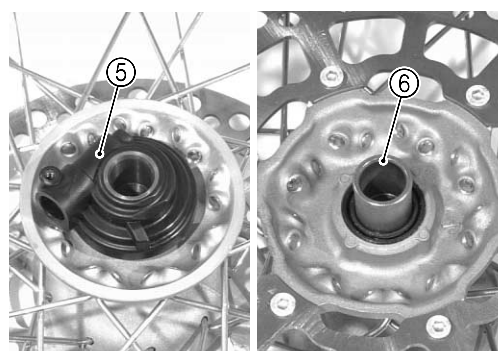
- Support the motorcycle with a jack or wooden block and remove the front axle ③ and front wheel ④.

⚠ CAUTION

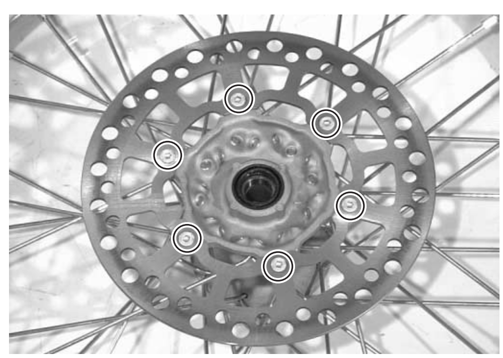
Do not operate the brake lever during or after front wheel removal.



- Remove the odometer gearbox ⑤ and spacer ⑥.



- Remove the brake disc.



INSPECTION

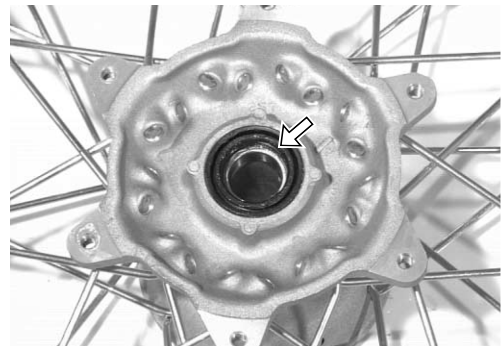
ODOMETER GEARBOX DUST SEAL

Inspect the odometer gearbox dust seal for damage. If any damage is found, replace the odometer gearbox with a new one.



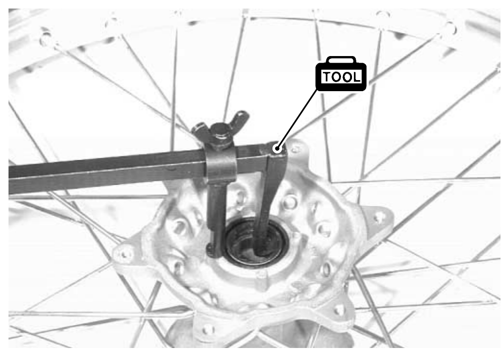
WHEEL HUB DUST SEAL

Inspect the wheel hub dust seal for damage. If any damage is found, replace the wheel hub dust seal with a new one.



- Remove the wheel hub dust seal using the special tool.

TOOL **09913-50121: Oil seal remover**

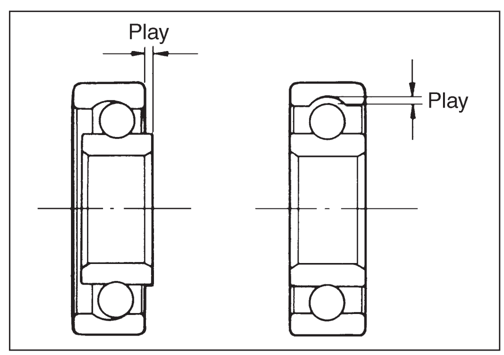


CAUTION

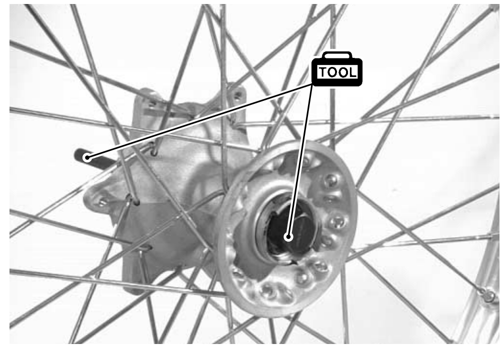
Replace the removed dust seal with a new one.

WHEEL BEARINGS

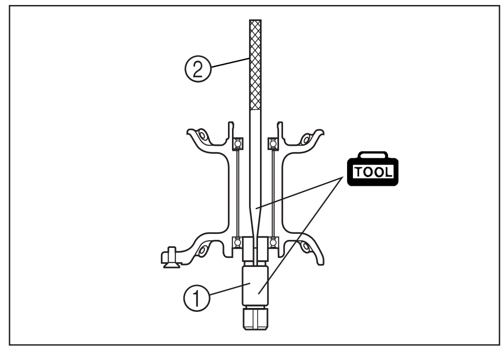
Inspect the play of the wheel bearings by hand while they are in the wheel. Rotate the inner race by hand to inspect for abnormal noise and smooth rotation. If any abnormal noise occurs, or rough movement is noted, replace the wheel bearings with new ones.



Remove the wheel bearings as follows:
- Remove the wheel hub dust seal. (☞ 6-6)
- Insert the bearing remover attachment ① into the wheel bearing.
- Insert the wedge bar ② from the opposite side and lock it into the slit of the bearing remover attachment.
- Drive out the wheel bearing by striking the wedge bar.



TOOL **09941-50111: Bearing remover**

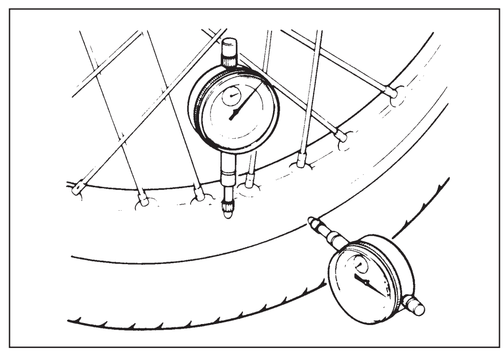


⚠ CAUTION

Replace the removed bearings with new ones.

FRONT WHEEL

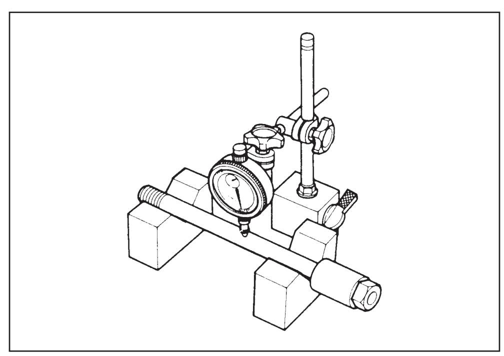
Make sure that the wheel runout (axial and radial) does not exceed the service limit when checked as shown. An excessive amount of runout is usually due to worn or loose wheel bearings and can be corrected by replacing the bearings. If bearing replacement fails to reduce the runout, replace the wheel with a new one.



DATA **Wheel rim runout (axial and radial)**
Service Limit: 2.0 mm (0.08 in)

FRONT AXLE

Measure the front axle runout using the dial gauge. If the runout exceeds the service limit, replace the front axle with a new one.



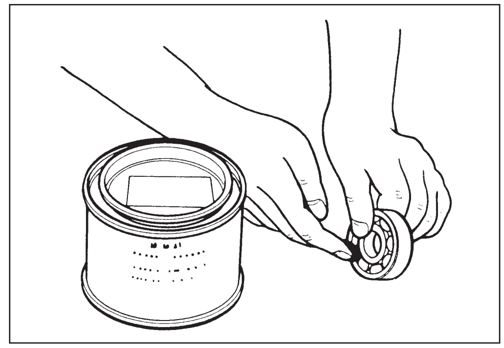
TOOL **09900-20606: Dial gauge (1/100 mm)**
09900-20701: Magnetic stand
09900-21304: V-block set (100 mm)

DATA **Wheel axle runout**
Service Limit: 0.25 mm (0.010 in)

TIRE .... ☞ 2-21 and 2-22
SPOKE NIPPLES .... ☞ 2-22

REASSEMBLY AND REMOUNTING

Reassemble and remount the front wheel in the reverse order of removal and disassembly. Pay special attention to the following points:

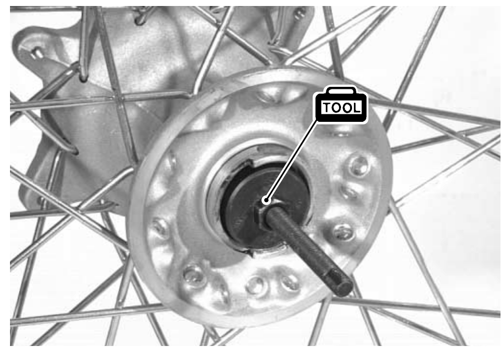


WHEEL BEARINGS

- Apply SUZUKI SUPER GREASE “A” to the wheel bearings.

For USA
99000-25030: SUZUKI SUPER GREASE “A”
For the other countries
99000-25010: SUZUKI SUPER GREASE “A”

- Install the wheel bearings using the special tool.



TOOL **09924-84521: Bearing installer set**

CAUTION

First, install the left wheel bearing, and then install the right wheel bearing. (☞ 6-4)

WHEEL HUB DUST SEAL

- Apply SUZUKI SUPER GREASE “A” to the lip of dust seal.

For USA
99000-25030: SUZUKI SUPER GREASE “A”
For the other countries
99000-25010: SUZUKI SUPER GREASE “A”

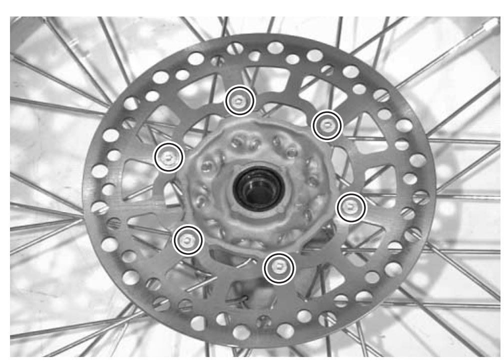
- Install the wheel hub dust seal using the special tool.



TOOL **09913-70210: Bearing installer set**

BRAKE DISC

- Make sure that the brake disc is clean and free of any grease. Apply THREAD LOCK SUPER “1360” to the brake disc mounting bolts, and then tighten them to the specified torque.



TOOL **99000-32130: THREAD LOCK SUPER “1360”**

Brake disc mounting bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

ODOMETER GEARBOX

- Apply SUZUKI SUPER GREASE “A” to the odometer gear-box dust seal.



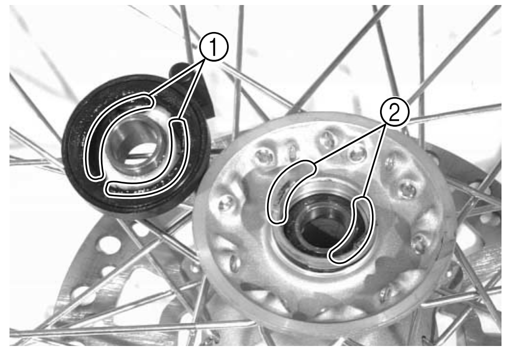
For USA

99000-25030: SUZUKI SUPER GREASE “A”

For the other countries

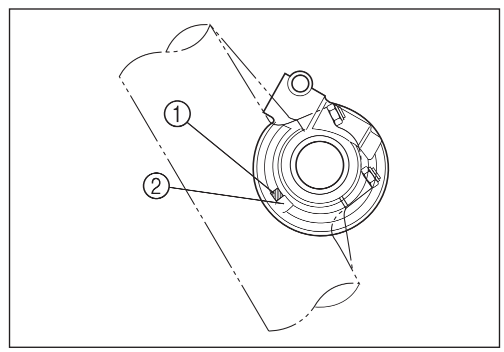
99000-25010: SUZUKI SUPER GREASE “A”

- Align the grooves ① on the odometer gearbox with the lugs ② on the wheel hub.

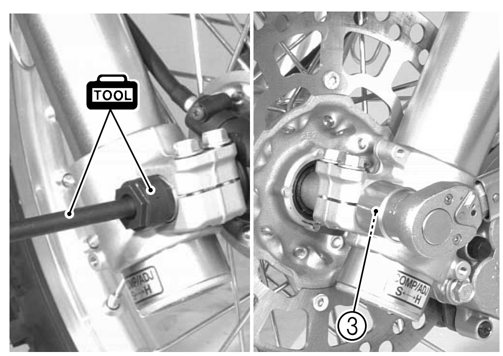


FRONT WHEEL

- Make sure that the front fork stopper ① and the odometer gearbox stopper ② are installed as shown.



- Tighten the front axle nut ③ to the 20 N·m (2.0 kgf-m, 14.5 lb-ft) by holding the front axle using the special tools.

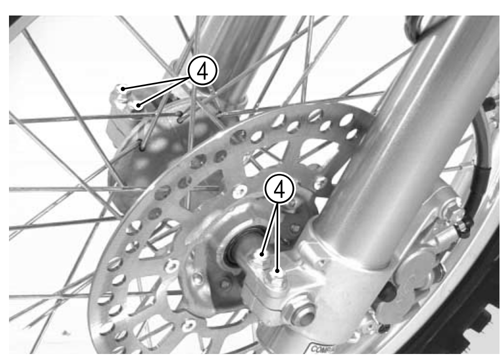


TOOL **09940-34520: T handle**
09940-34581: Attachment F

- Tighten the front axle pinch bolts ④ to the specified torque.

Front axle pinch bolt: 18 N·m (1.8 kgf-m, 13.0 lb-ft)

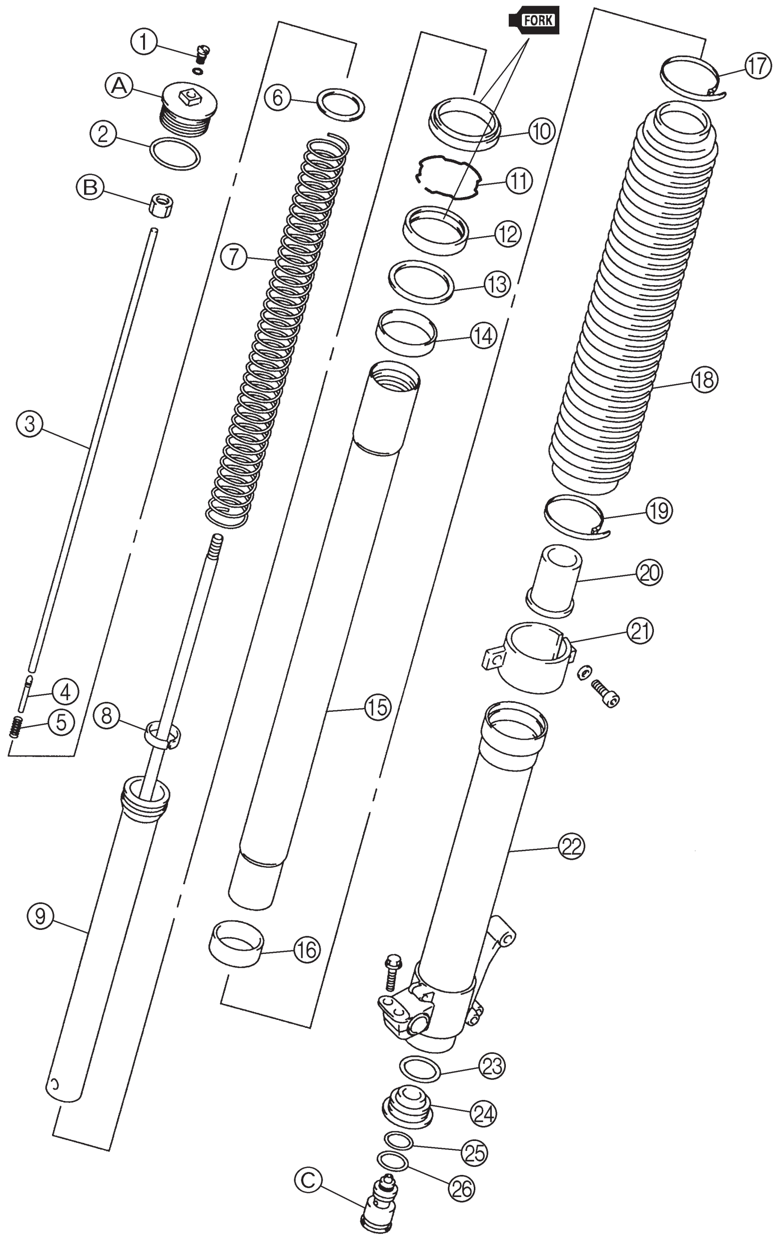
- Tighten the front axle nut to the specified torque, after tight-ening the axle pinch bolts.



Front axle nut: 42 N·m (4.2 kgf-m, 30.5 lb-ft)

NOTE:
After remounting the front wheel, pump the brake lever a few times to check for proper brake operation.

FRONT FORK
CONSTRUCTION



① Air valve
② O-ring
③ Push rod
④ Needle
⑤ Spring
⑥ Washer
⑦ Spring
⑧ Damper rod ring
⑨ Damper
⑩ Dust seal
⑪ Stopper ring
⑫ Oil seal
⑬ Oil seal retainer
⑭ Inner tube antifriction metal
⑮ Inner tube
⑯ Outer tube antifriction metal
⑰ Clamp
⑱ Boot
⑲ Clamp
⑳ Oil lock piece
㉑ Holder
㉒ Outer tube
㉓ O-ring
㉔ End plate
㉕ O-ring
㉖ O-ring

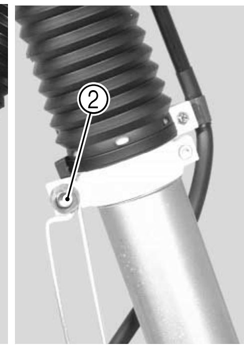
Ⓐ Front fork cap bolt
Ⓑ Front fork inner rod locknut
Ⓒ Front fork damper rod bolt

ITEM	N·m	kgf-m	lb-ft
Ⓐ	23	2.3	16.5
Ⓑ	22	2.2	16.0
Ⓒ	80	8.0	58.0

REMOVAL AND DISASSEMBLY

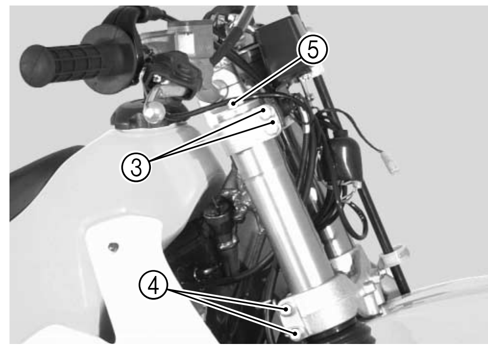
- Remove the front wheel. (☞ 6-5)
- Remove the front brake caliper. (☞ 6-47)
- Remove the headlight assembly. (☞ 7-27)
- Remove the brake hose clamp ① and odometer cable guide ②.





- Remove the front fork after loosening the front fork upper clamp bolts ③ and lower clamp bolts ④.

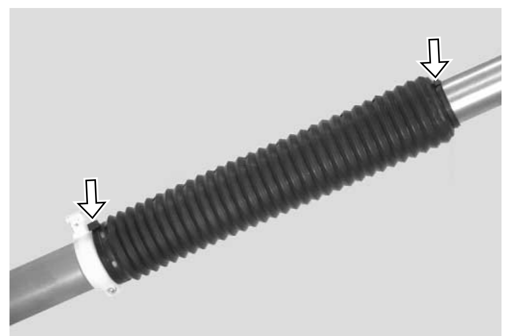
NOTE:
Slightly loosen the front fork cap bolt ⑤ to facilitate later disassembly.



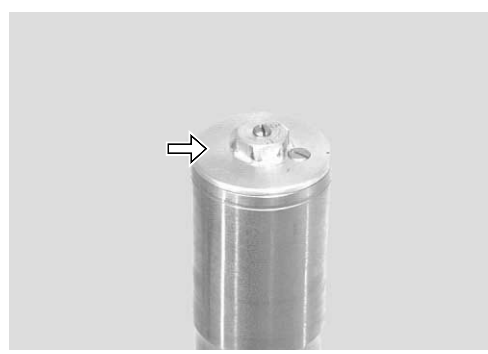
- Remove the boot.

⚠ CAUTION

Replace the removed boot clamps with new ones.

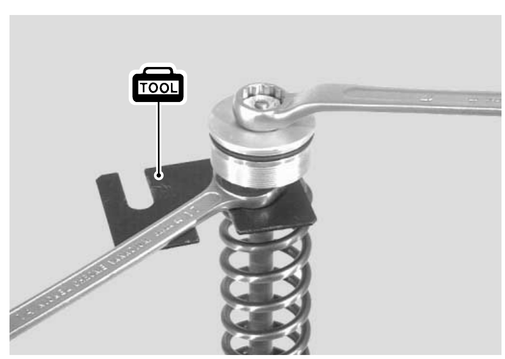


- Remove the cap bolt out of the inner tube and slowly pull down the inner tube.



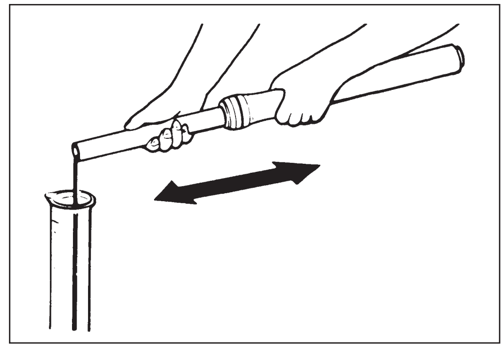
- Hold the piston rod locknut with a 17-mm wrench and special tool.
- Remove the cap bolt, washer, and spring.

TOOL **09940-94922: Front fork stopper plate**

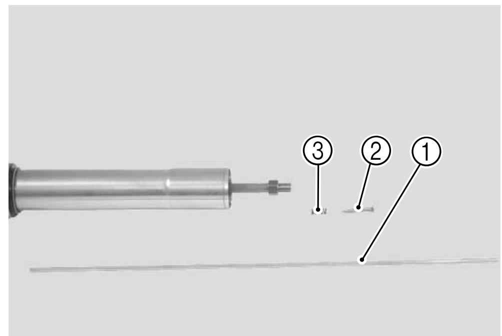


- Invert the fork and stroke it several times to drain out the fork oil.

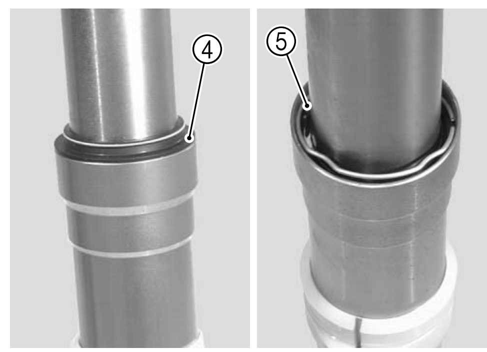
NOTE:
Hold the fork inverted for a few minutes to drain the oil.



- Remove the push rod ①, needle ②, and return spring ③.



- Remove the dust seal ④ and stopper ring ⑤.

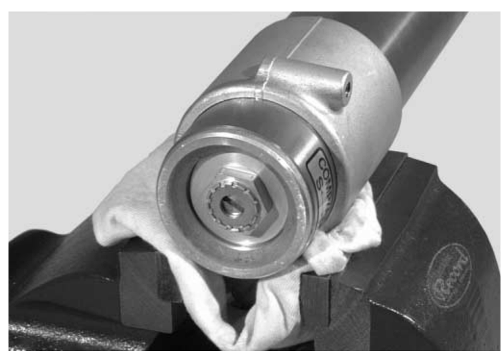


- Place the front fork in a vise with soft jaws.

NOTE:
Clamp the right front fork axle holder and the left front fork brake caliper bracket using the vise.

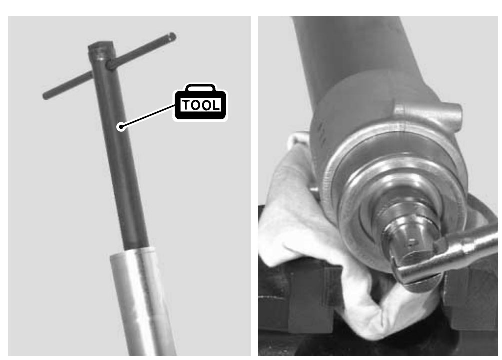
⚠ CAUTION

Do not over tighten the vise or the outer tube will be damaged.

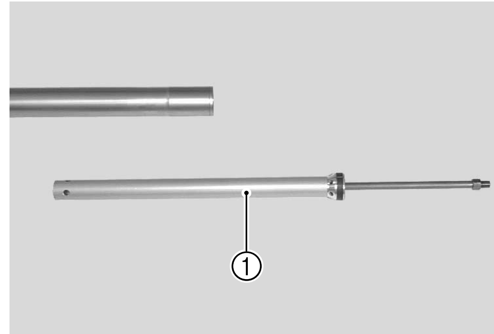


- Remove the damper rod bolt using the special tool.

TOOL **09940-54821: Front fork inner rod holder**

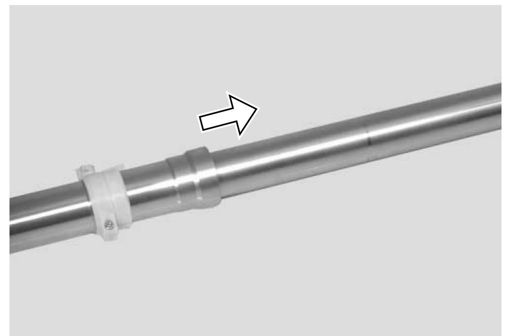


- Remove the damper ①.



- Slowly pull out the inner tube.

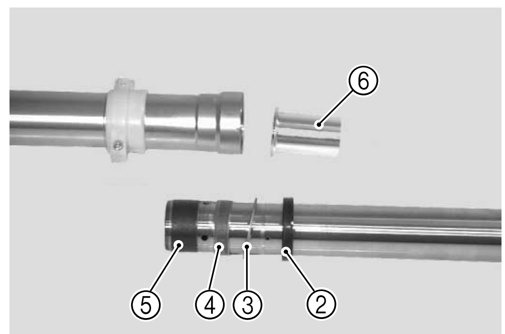
NOTE:
Be careful not to damage the inner tube.



- Remove the oil seal ②, oil seal retainer ③, outer tube antifriction metal ④ inner tube antifriction metal ⑤, and oil lock piece ⑥.

⚠ CAUTION

The outer and inner tube's antifriction metals must be replaced along with the oil seal and dust seal when assembling the front fork.

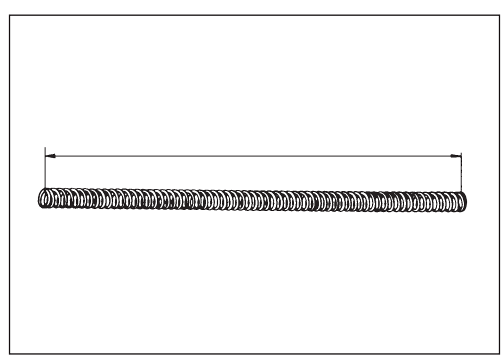


INSPECTION

FORK SPRING

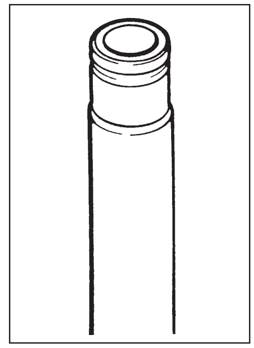
Measure the fork spring free length. If the fork spring free length is shorter than the service limit, replace the fork spring with a new one.

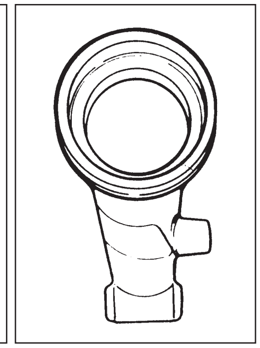
DATA **Front fork spring free length**
Service Limit: 500 mm (19.7 in)



INNER AND OUTER TUBE

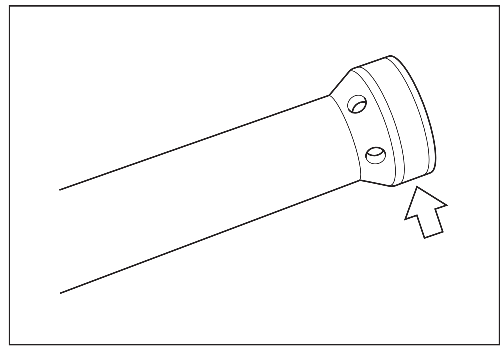
Inspect the inner tube sliding surface and outer tube sliding surface for any scuffing or damage. If any damages are found, replace the inner tube and outer tube with new ones.





DAMPER ROD RING

Inspect the damper rod ring for wear or damage. If any damages are found, replace the fork cylinder ring with a new one.

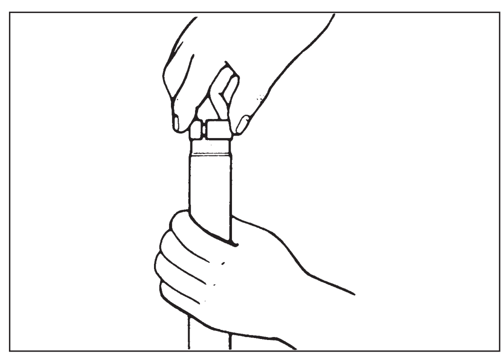


REASSEMBLY AND REMOUNTING

Reassemble and remount the front fork in the reverse order of removal and disassembly. Pay special attention to the following points:

ANTIFRICTION METALS, OIL SEAL, AND DUST SEAL

- Hold the inner tube vertically, clean the metal groove, and install the inner tube slide metal by hand.



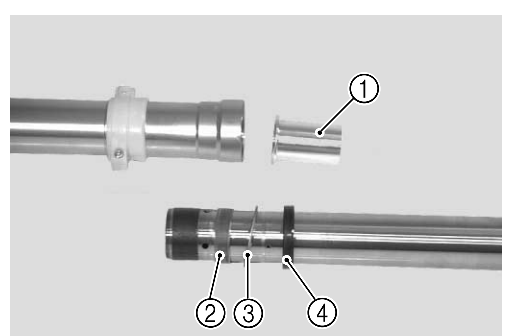
⚠ CAUTION

- ∗ **Do not damage the Teflon coated surface of the inner tube antifriction metal when mounting the inner tube.**
- ∗ **Apply fork oil to the inner tube and outer tube antifriction metals.**

- Apply front fork oil to the lip of oil seal lightly before installing it.

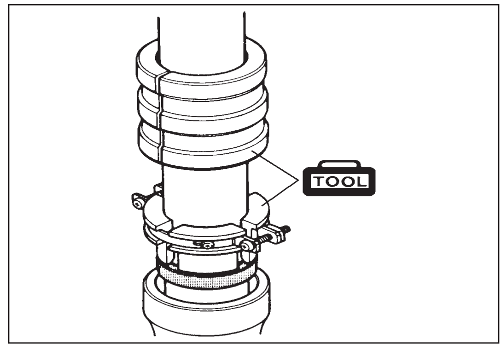
FORK **99000-99001-SS5: SUZUKI FORK OIL SS-05**

- Install the oil lock piece ①, outer tube antifriction metal ②, oil seal retainer ③, and oil seal ④ onto the inner tube.



- Insert the inner tube into the outer tube and install the oil seal using the special tool.

09940-52861: Front fork oil seal installer set



- Install the oil seal stopper ring.

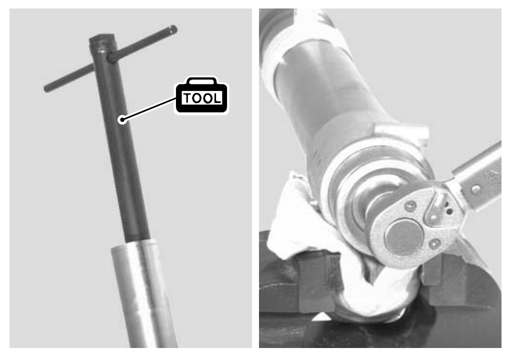


CAUTION

Make sure that the oil seal stopper ring is fitted securely.

DAMPER ROD BOLT

- Tighten the front fork damper rod bolt to the specified torque using the special tool.



09940-54821: Front fork inner rod holder

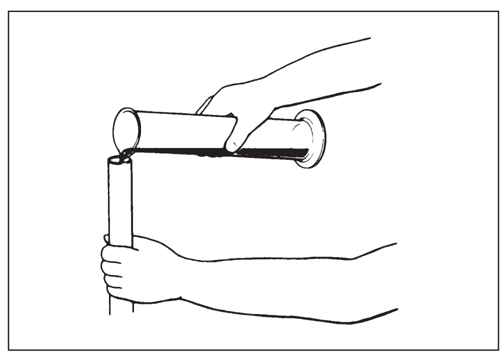
Frant fork damper rod bolt: 80 N·m (8.0 kgf-m, 58.0 lb-ft)

CAUTION

Use a new O-ring to prevent oil leakage.

FORK OIL

- Place the front fork vertically without the spring.
- Pour the specified fork oil into the inner tube.

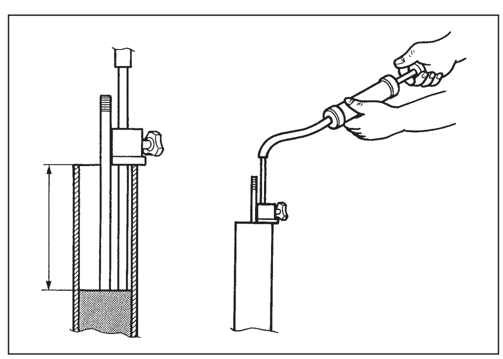


99000-99001-SS5: SUZUKI FORK OIL SS-05

Standard fork oil capacity (each leg): 720 ml (24.3 US oz, 25.4 Imp oz)

- Move the inner tube and inner rod slowly several times.

- Hold the front fork in a vertical position and adjust the fork oil level using the special tool.



09943-74111: Fork oil level gauge

Fork oil level
Standard: 122 mm (4.8 in)

NOTE:
Before adjusting the oil level, remove the fork spring and compress the inner tube fully.

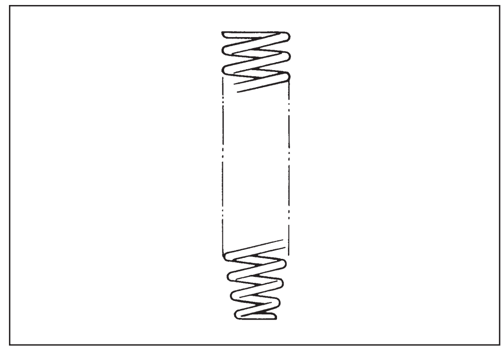
PISTON ROD LOCKNUT AND FORK SPRING

- Install the piston rod locknut to the lowest position.



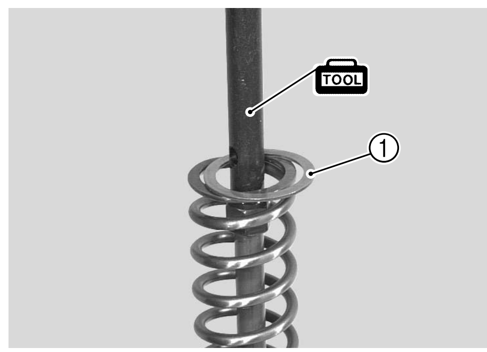
- Install the fork spring.

NOTE:
The end of the fork spring with the smaller inside diameter should be at the bottom of the front fork.

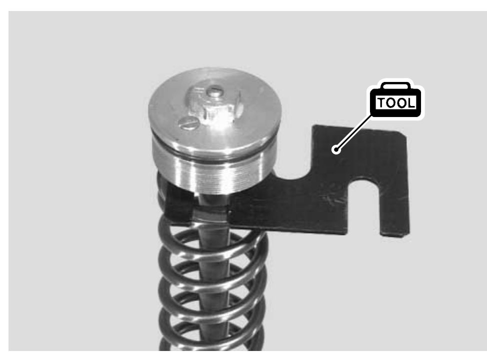


- Install a washer ①.
- Pull up the piston rod using the special tool.

TOOL **09940-52841: Front fork inner rod holder**



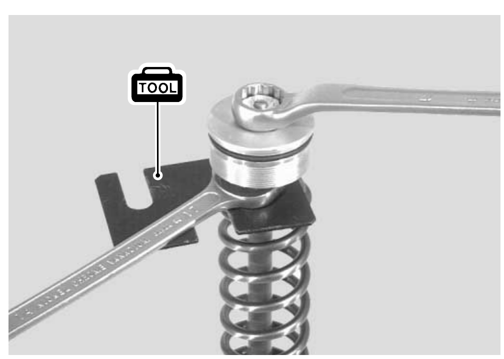
- Compress the spring and then insert the special tool between the locknut and washer.
- Slowly turn the cap bolt by hand until it is seated on the lock-nut.
- Tighten the locknut to the specified torque while holding the cap bolt.



TOOL **09940-94922: Front fork stopper plate**

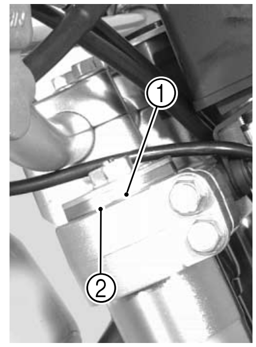
Front fork inner rod locknut:
22 N·m (2.2 kgf-m, 16.0 lb-ft)

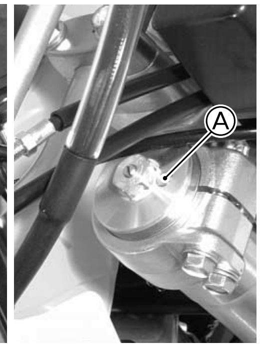
NOTE:
Before installing the cap bolt turn the rebound damping force adjuster to the softest position.



- When remounting the front fork, align the groove ① of the inner tube with the upper surface ② of the steering stem upper bracket.

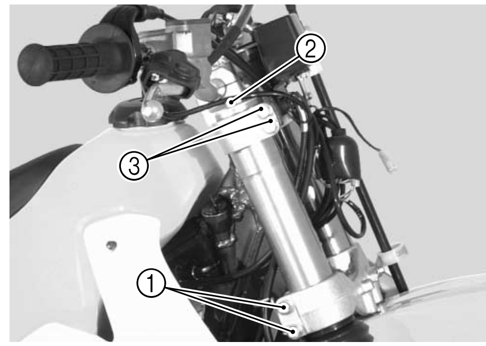
NOTE:
Make sure that the air valve Ⓐ is at the front position when installing the front fork.





- Tighten the front fork lower clamp bolts ①, front fork cap bolt ②, and front fork upper clamp bolts ③ to the specified torque.

Front fork lower clamp bolt: 32 N·m (3.2 kgf-m, 23.0 lb-ft)
Front fork upper clamp bolt: 30 N·m (3.0 kgf-m, 21.5 lb-ft)
Front fork cap bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)



FRONT WHEEL .... ☞ 6-5

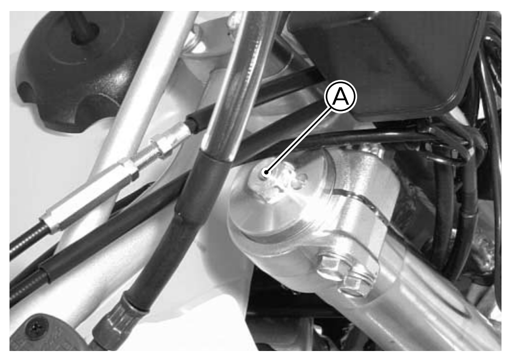
NOTE:
Before tightening the front axle nut and front axle pinch bolts, move the front fork up and down four or five times.

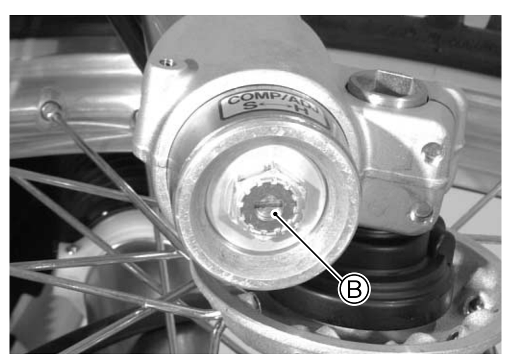


SUSPENSION SETTING

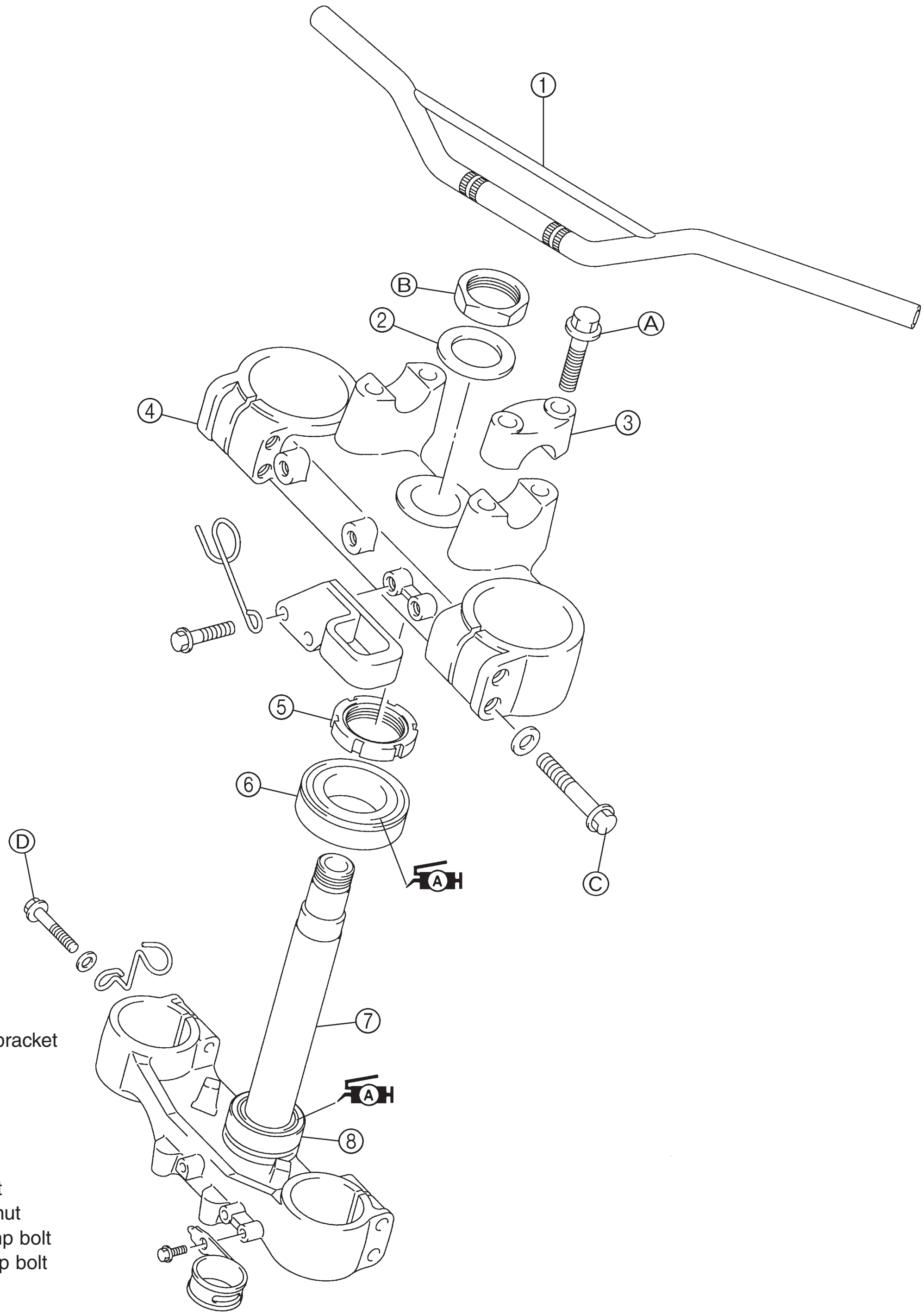
After installing the front fork, adjust the rebound damping force and compression damping force as follows.
Fully turn the damping force adjuster clockwise to the hard setting position, and then turn it out to the standard setting position.

Standard setting position
Rebound damping force adjuster Ⓐ:
15 clicks out
Compression damping force adjuster Ⓑ:
12 clicks out





STEERING
CONSTRUCTION



① Handlebar
② Washer
③ Handlebar clamp
④ Steering stem head bracket
⑤ Steering stem nut
⑥ Bearing
⑦ Steering stem
⑧ Bearing

Ⓐ Handlebar clamp bolt
Ⓑ Steering stem head nut
Ⓒ Front fork upper clamp bolt
Ⓓ Front fork lower clamp bolt

ITEM	N·m	kgf-m	lb-ft
Ⓐ	23	2.3	16.5
Ⓑ	90	9.0	65.0
Ⓒ	30	3.0	21.5
Ⓓ	32	3.2	23.0

REMOVAL AND DISASSEMBLY

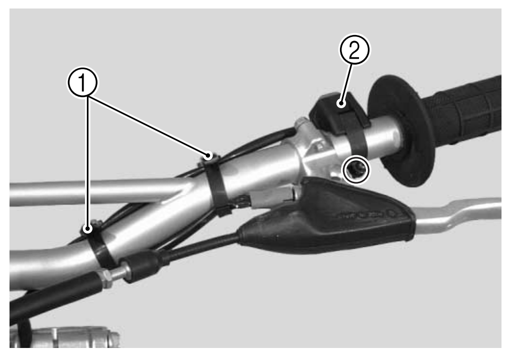
- Remove the front fork. (☞ 6-11)
- Remove the master cylinder assembly. (☞ 6-51)
- Remove the front brake hose guide bolts.



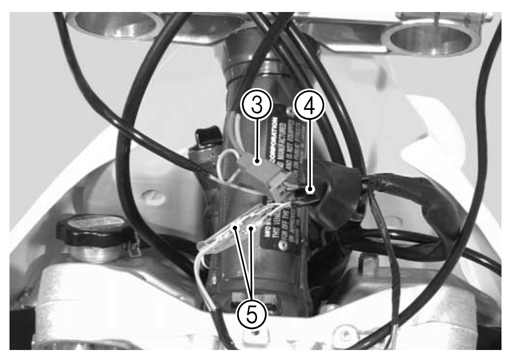
- Remove the odometer assembly.



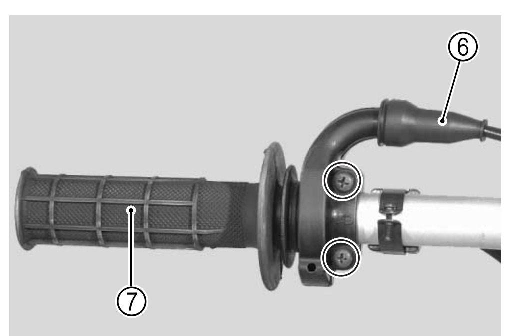
- Remove the clamps ① and engine stop switch ②.



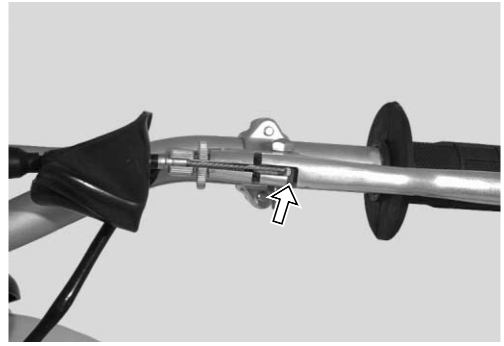
- Disconnect the main switch coupler ③, starter button coupler ④ (DR-Z400E), and clutch lever position switch lead wires ⑤ (DR-Z400E).



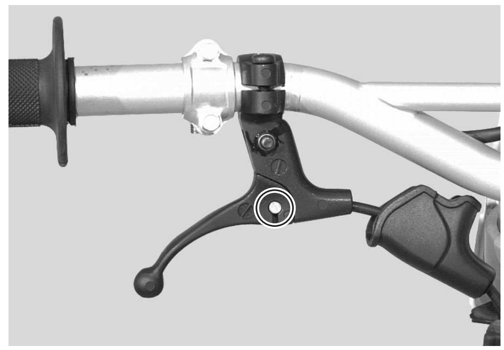
- Remove the throttle cables ⑥ and throttle grip ⑦.



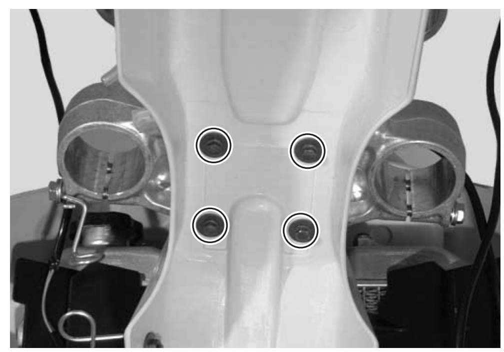
- Disconnect the clutch cable.



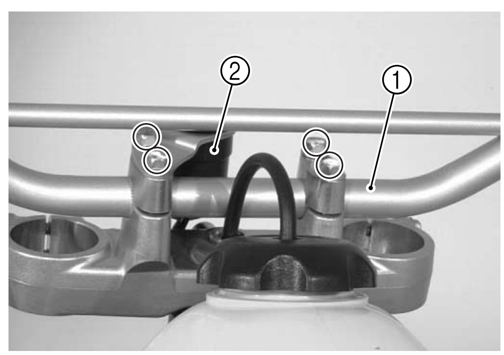
- Disconnect the decompression cable. (DR-Z400)



- Remove the front fender.



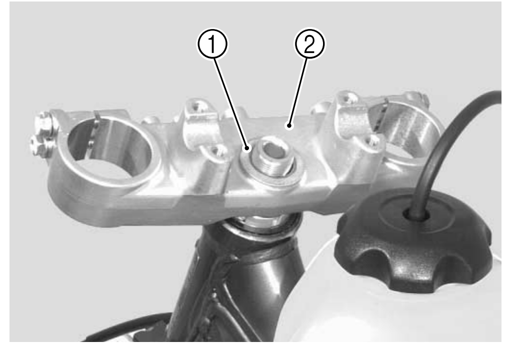
- Remove the handlebar ① and ignition switch ② (DR-Z400E).



- Remove the steering stem head nut.

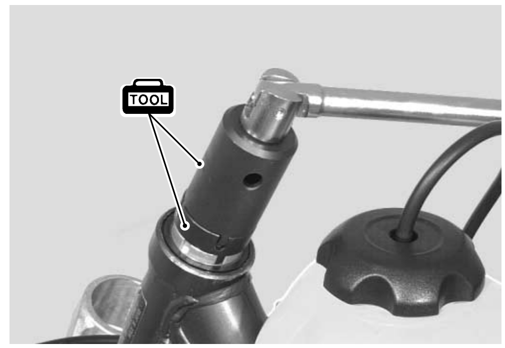


- Remove the washer ① and steering stem upper bracket ②.



- Remove the steering stem nut using the special tools.

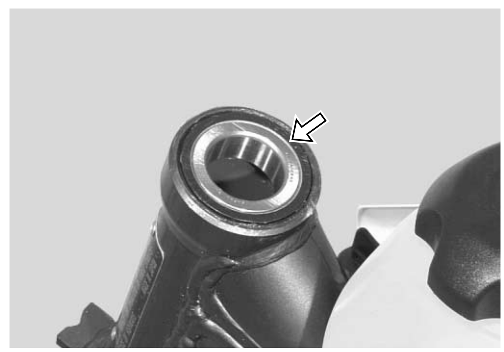
TOOL **09940-14911: Steering nut socket wrench**
09940-14960: Steering nut wrench socket



- Remove the steering stem lower bracket.

NOTE:
Hold the steering stem lower bracket to prevent it from falling.

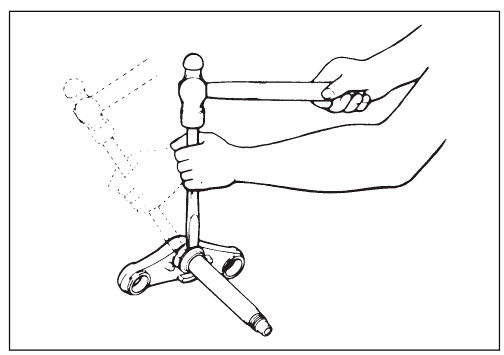
- Remove the steering stem upper bearing.



INSPECTION

Inspect the removed parts for the following abnormalities. If any damages are found, replace the respective part with a new one.

∗ Steering race wear and brinelling.
∗ Bearing wear or damage.
∗ Abnormal bearing noise.
∗ Distortion of steering stem or handlebar.



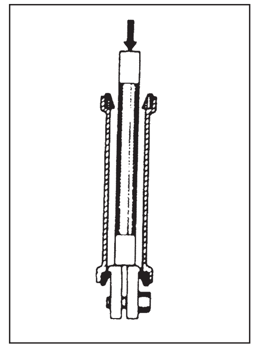
- Remove the steering stem lower bearing using a chisel.

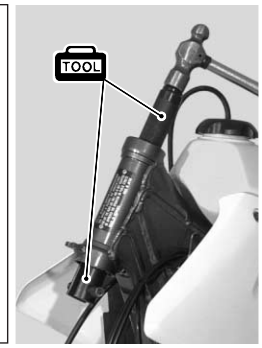
CAUTION

Replace the removed bearing with a new one.

- Drive out the steering stem upper and lower bearing races using the special tools.

09941-54911: Bearing outer race remover
09941-74910: Bearing installer





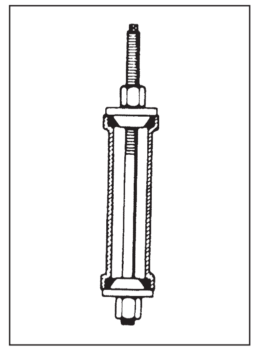
REASSEMBLY AND REMOUNTING

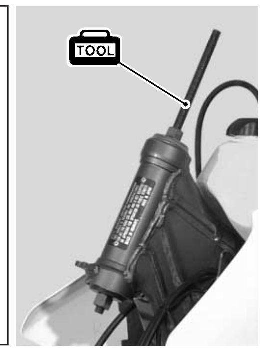
Reassemble and remount the steering stem in the reverse order of removal and disassembly. Pay attention to the following points.

BEARING RACES

- Press in the upper and lower bearing races using the special tools.

09924-84510: Bearing installer set
09941-34513: Steering race installer

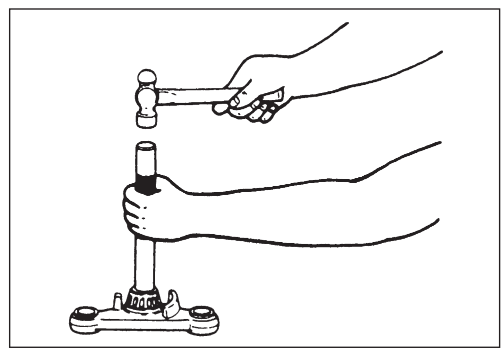




BEARINGS

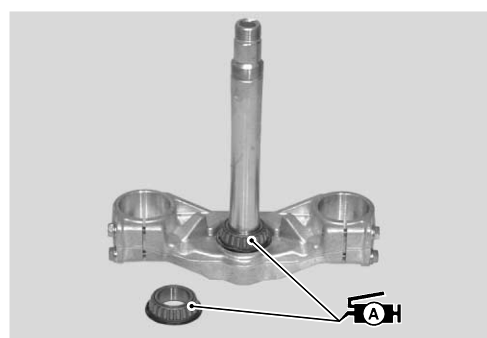
- Press in the steering stem lower bearing using the special tool.

09925-18010: Steering bearing installer



- Apply SUZUKI SUPER GREASE “A” to the steering stem upper and lower bearings.

For USA
99000-25030: SUZUKI SUPER GREASE “A”
For the other countries
99000-25010: SUZUKI SUPER GREASE “A”



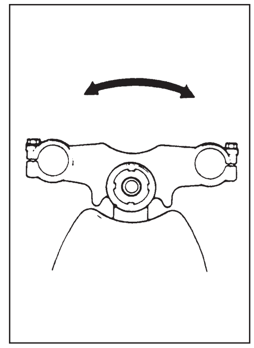
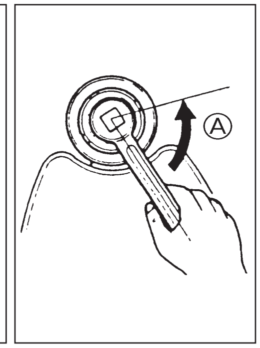
STEERING STEM

- Tighten the steering stem nut to the specified torque using the special tools.

09940-14911: Steering nut socket wrench
09940-14960: Steering nut wrench socket

Steering stem nut: 45 N·m (4.5 kgf-m, 32.5 lb-ft)



- Turn the steering stem lower bracket about five or six times to the left and right so that the bearings seat properly.
- Loosen the steering stem nut 1/4-1/2 of a turn Ⓐ.

NOTE:
This adjustment will vary from motorcycle to motorcycle.

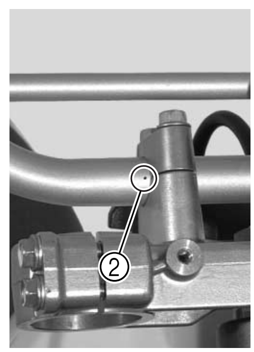


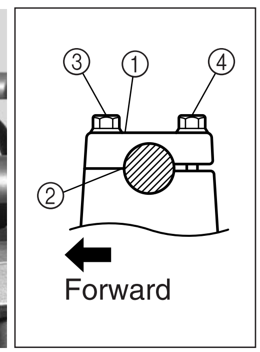
- Tighten the steering stem head nut to the specified torque.

Steering stem head nut: 90 N·m (9.0 kgf-m, 65.0 lb-ft)

NOTE:
Before tightening the steering stem head nut, temporarily install the front forks.

HANDLEBAR



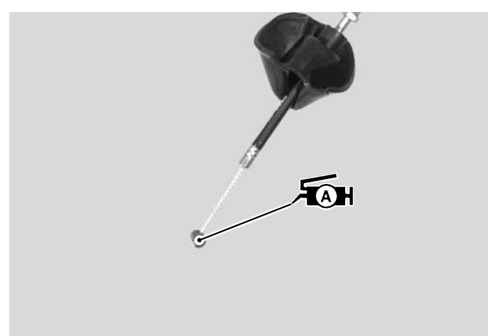


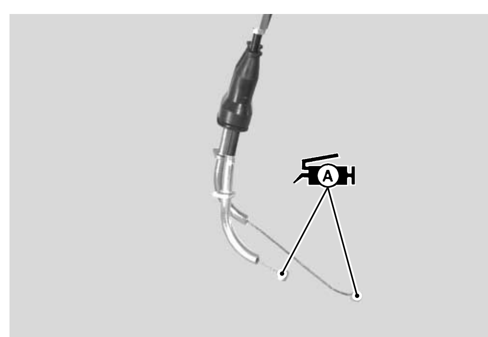
When setting the handlebar clamp to the handlebar holder of the steering upper bracket, face the punched mark ① on its clamp forward.

- Set the handlebar to match its punched mark ② to the mating face of the handlebar clamp.
- First, tighten the handlebar clamp bolts ③ to the specified torque, and then tighten the handlebar clamp bolts ④ to the specified torque.

Handlebar clamp bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

CLUTCH CABLE AND THROTTLE CABLES





- Apply SUZUKI SUPER GREASE “A” to the end of clutch cable and throttle cables.

For USA
99000-25030: SUZUKI SUPER GREASE “A”
For the other countries
99000-25010: SUZUKI SUPER GREASE “A”

FRONT WHEEL .... ☞ 6-5
WIRE HARNESS, CABLE,
AND HOSE ROUTING .... ☞ 8-12 to 8-18

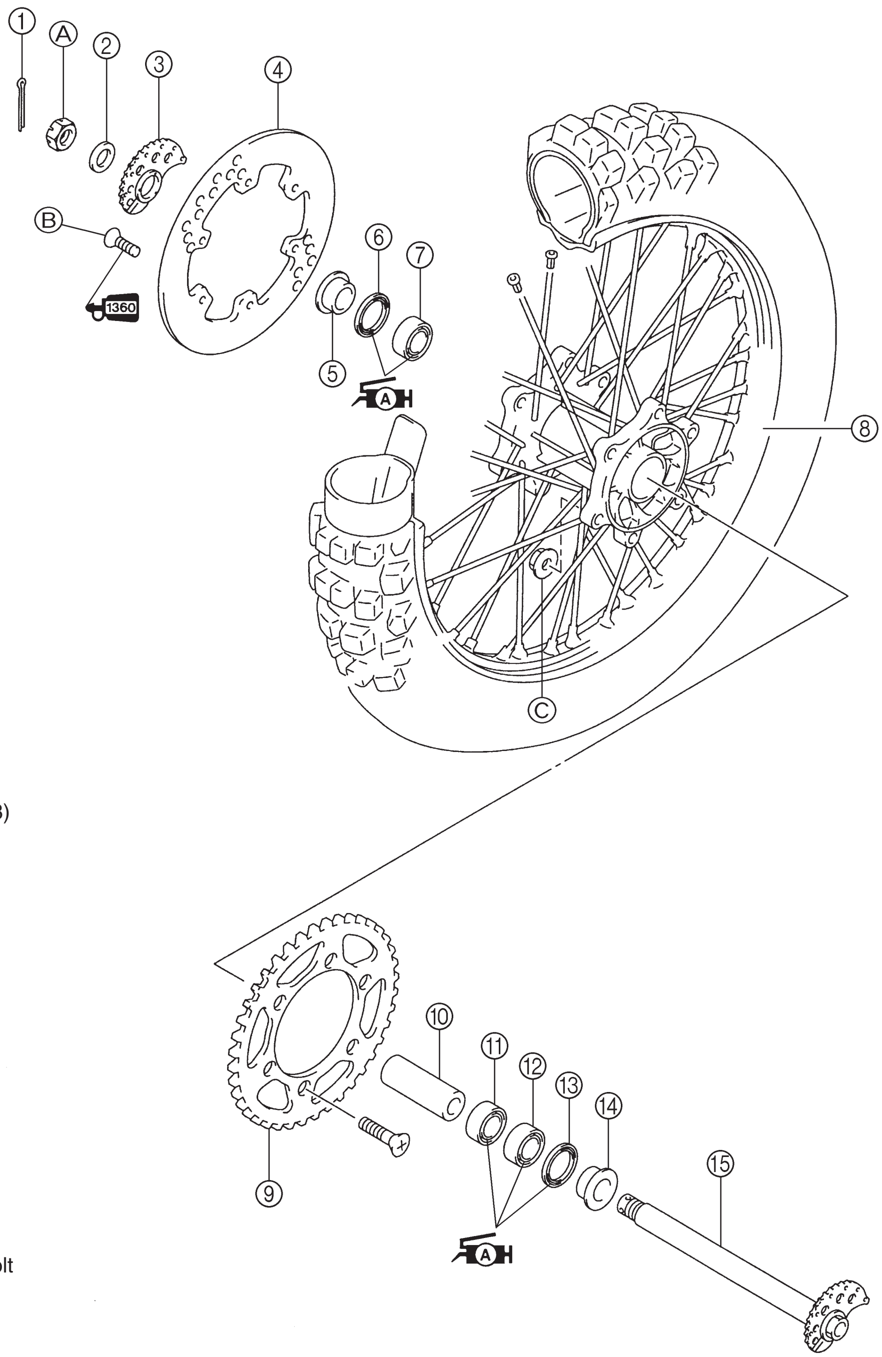
NOTE:
Hold the front fork legs, move them back and forth and make sure that the steering is not loose.



⚠ CAUTION

After performing the adjustment and installing the handlebars, “rock” the front wheel assembly forward and backward to ensure that there is no play and that the procedure was accomplished correctly. Finally, check to make sure that the steering stem moves freely from left to right with its own weight. If play or stiffness is noticeable, readjust the steering stem nut.

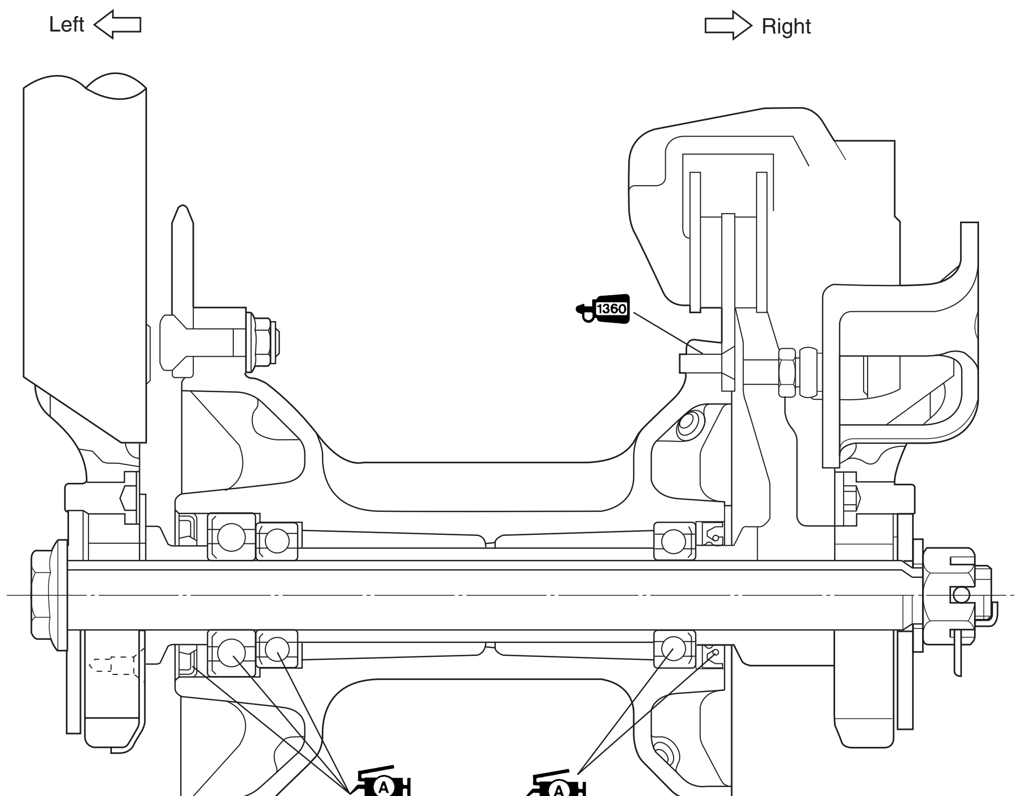
REAR WHEEL
CONSTRUCTION

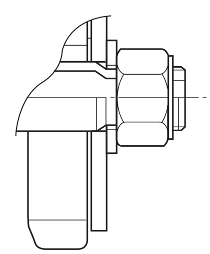


① Cotter pin (For E-03, 28)
② Washer
③ Chain adjuster
④ Brake disc
⑤ Spacer
⑥ Dust seal
⑦ Bearing
⑧ Rear wheel
⑨ Rear sprocket
⑩ Spacer
⑪ Bearing
⑫ Bearing
⑬ Dust seal
⑭ Spacer
⑮ Rear axle

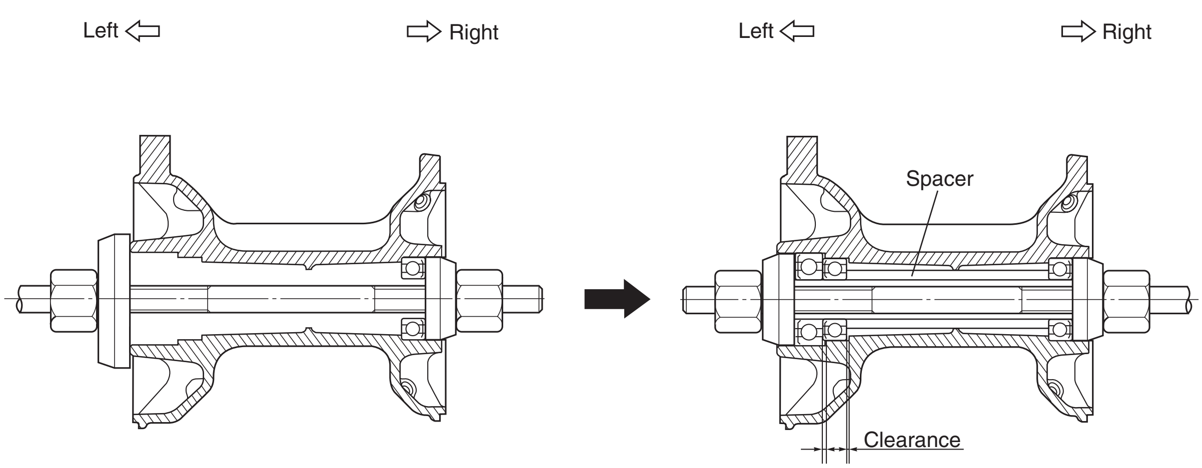
Ⓐ Rear axle nut
Ⓑ Brake disc mounting bolt
Ⓒ Rear sprocket nut

ITEM		N·m	kgf-m	lb-ft
Ⓐ	E-03, 28	100	10.0	72.5
	Others	110	11.0	75.5
Ⓑ		10	1.0	7.0
Ⓒ		30	3.0	21.5



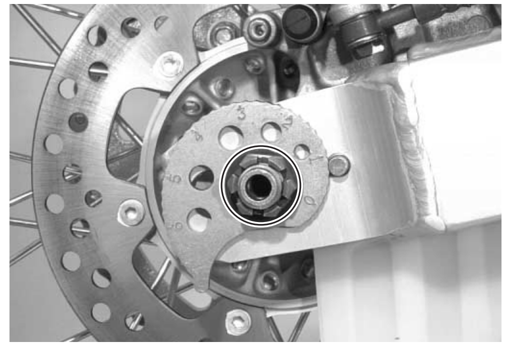


(Except E-03, 28)



REMOVAL AND DISASSEMBLY

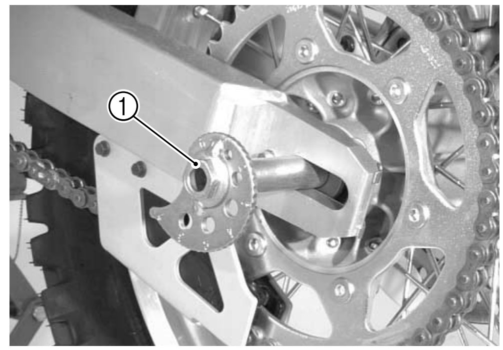
- Remove the cotter pin. (E-03, 28)
- Remove the rear axle nut.



⚠ CAUTION

Replace the removed cotter pin with a new one.

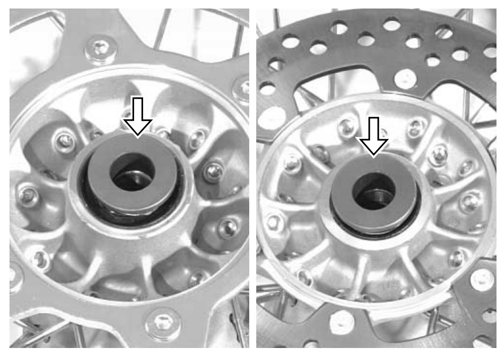
- Support the motorcycle with a jack or wooden block and remove the rear axle ① and rear wheel.



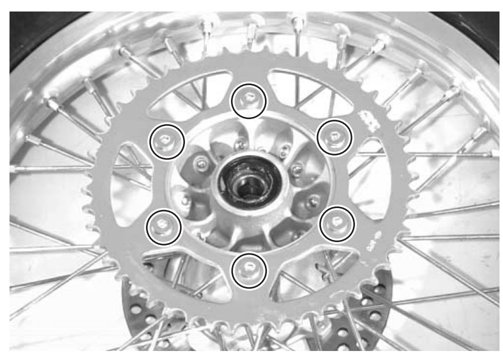
⚠ CAUTION

Do not operate the brake pedal during or after rear wheel removal.

- Remove the spacers.



- Remove the rear sprocket.



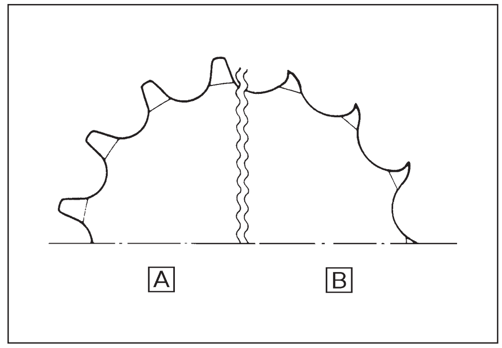
- Remove the brake disc.



INSPECTION

REAR SPROCKET

Inspect the rear sprocket for wear and damage. If any damages are found, replace the sprocket and drive chain as a set.

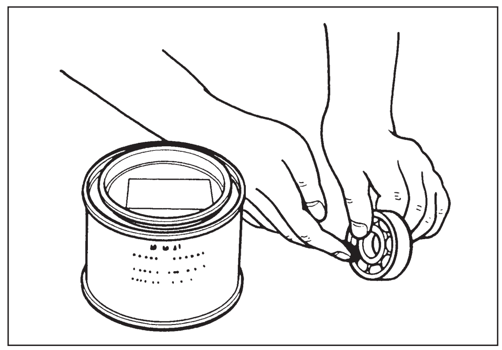


A Normal wear
B Excessive wear

WHEEL HUB DUST SEALS .... ☞ 6-6
WHEEL BEARINGS .... ☞ 6-6 and 6-7
REAR WHEEL .... ☞ 6-7
REAR AXLE .... ☞ 6-7

REASSEMBLY AND REMOUNTING

Reassemble and remount the rear wheel in the reverse order of removal and disassembly. Pay special attention to the following points:

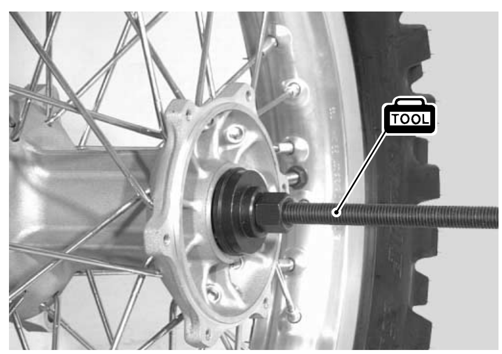


WHEEL BEARINGS

- Apply SUZUKI SUPER GREASE “A” to the wheel bearings.

For USA
99000-25030: SUZUKI SUPER GREASE “A”
For the other countries
99000-25010: SUZUKI SUPER GREASE “A”

- Install the wheel bearings using the special tool.



TOOL **09941-34513: Bearing installer set**

CAUTION

First, install the right wheel bearing, and then install the left wheel bearings. The sealed cover on the wheel bearing must face out. (☞ 6-26)

WHEEL HUB DUST SEALS

- Apply SUZUKI SUPER GREASE "A" to the wheel hub dust seals.

For USA

99000-25030: SUZUKI SUPER GREASE "A"

For the other countries

99000-25010: SUZUKI SUPER GREASE "A"

- Install the wheel hub dust seals using the special tool.

TOOL 09913-70210: Bearing installer set



CAUTION

After installing the right and left spacers to the rear wheel, inspect the lip of dust seals properly positioned.

BRAKE DISC

- Make sure that the brake disc is clean and free of any grease. Apply THREAD LOCK SUPER "1360" to the brake disc mounting bolts, and then tighten them to the specified torque.

99000-32130: THREAD LOCK SUPER "1360"

Brake disc mounting bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

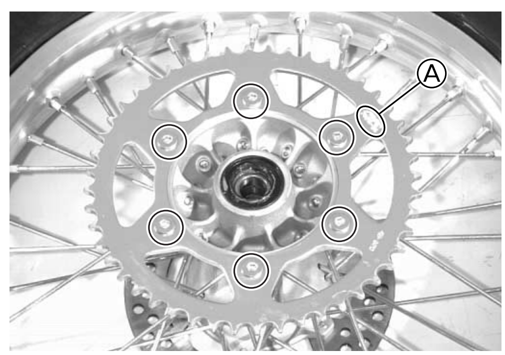


REAR SPROCKET

- Tighten the rear sprocket nuts to the specified torque.

Rear sprocket nut: 30 N·m (3.0 kgf-m, 21.5 lb-ft)

NOTE:
The stamped mark Ⓐ on the rear sprocket should face to the outside.



REAR WHEEL

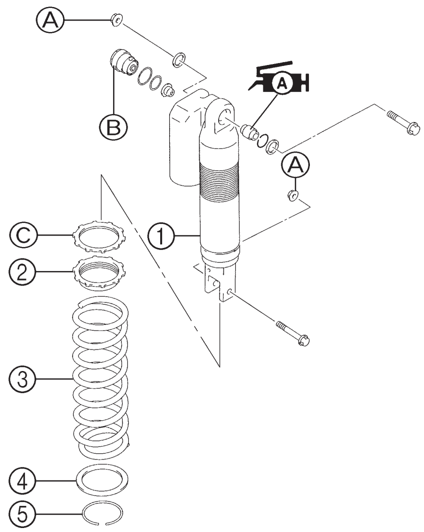


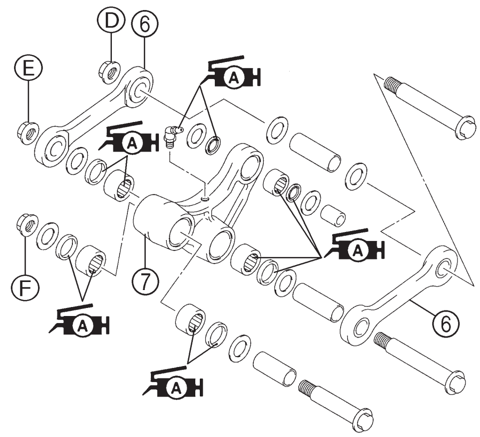
- Adjust the drive chain slack after installing the rear wheel axle. (☞ 2-16 and 2-17)
- Tighten the rear axle nut to the specified torque.

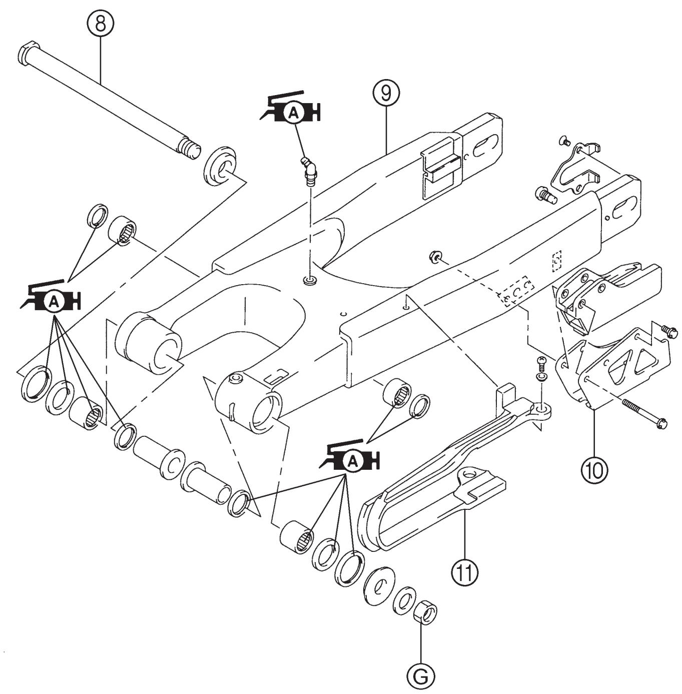
Rear axle nut:
100 N·m (10.0 kgf-m, 72.5 lb-ft).. for E-03, 28
110 N·m (11.0 kgf-m, 79.5 lb-ft).. for the other countries

NOTE:
* *After installing the rear axle nut, insert a new cotter pin into the rear axle. (E-03, 28)*
* *After remounting the rear wheel, pump the brake pedal a few times to check for proper brake operation.*

REAR SUSPENSION
CONSTRUCTION



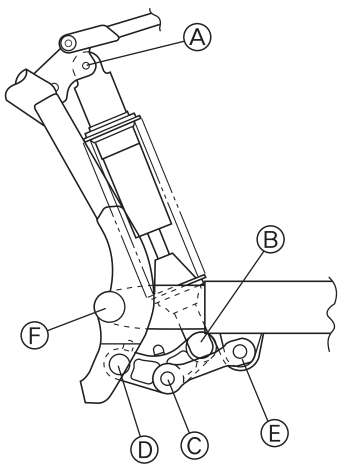


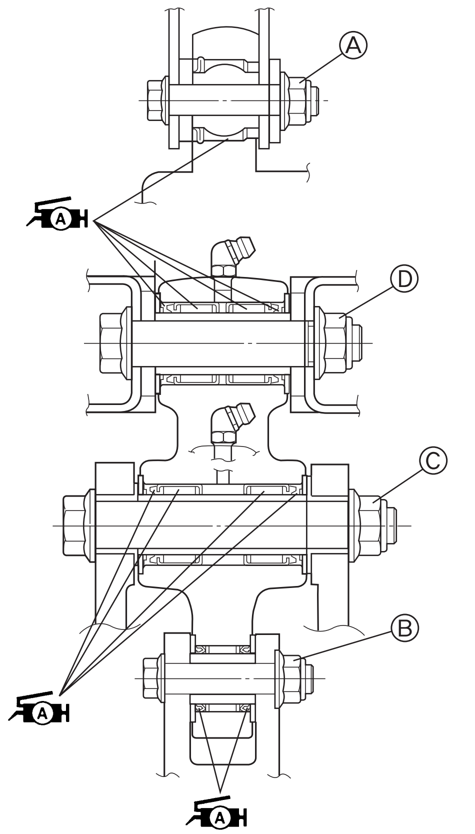


① Rear shock absorber
② Spring adjuster
③ Spring
④ Spring seat
⑤ Circlip
⑥ Cushion lever rod
⑦ Cushion lever
⑧ Swingarm pivot shaft
⑨ Swingarm
⑩ Chain guide
⑪ Chain buffer

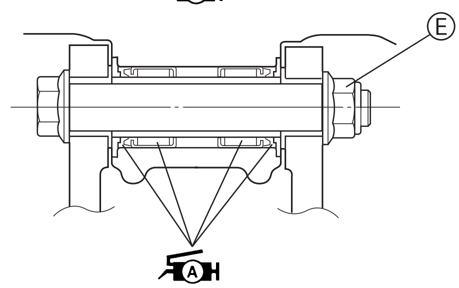
Ⓐ Rear shock absorber nut
Ⓑ Rear shock absorber compression adjuster assembly
Ⓒ Rear shock absorber spring adjuster lock ring
Ⓓ Cushion rod mounting nut
Ⓔ Cushion lever mounting nut
Ⓕ Cushion lever mounting nut
Ⓖ Swingarm pivot nut

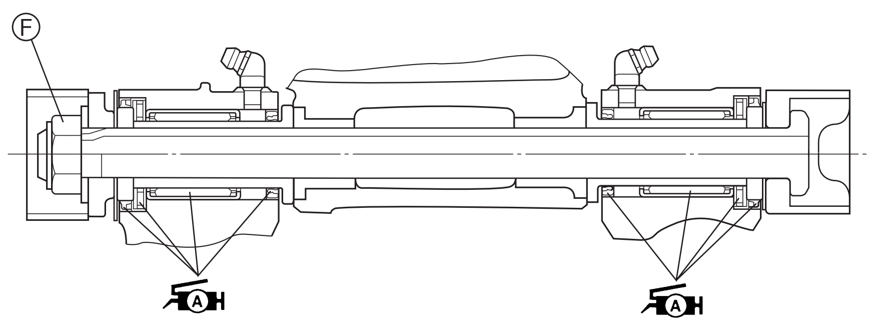
ITEM	N·m	kgf-m	lb-ft
Ⓐ	55	5.5	40.0
Ⓑ	30	3.0	21.5
Ⓒ	90	9.0	65.0
Ⓓ, Ⓔ	100	10.0	72.5
Ⓕ	100	10.0	72.5
Ⓖ	77	7.7	55.5





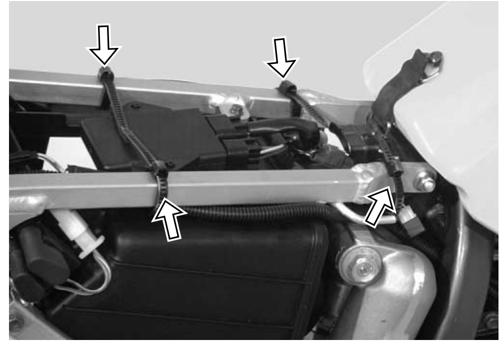
ITEM	N·m	kgf-m	lb-ft
Ⓐ	55	5.5	40.0
Ⓑ	55	5.5	40.0
Ⓒ	100	10.0	72.5
Ⓓ	100	10.0	72.5
Ⓔ	100	10.0	72.5
Ⓕ	77	7.7	55.5



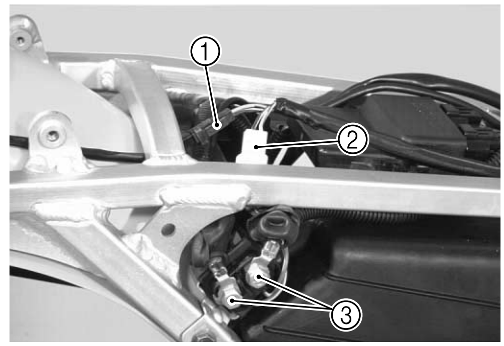


REAR SHOCK ABSORBER REMOVAL

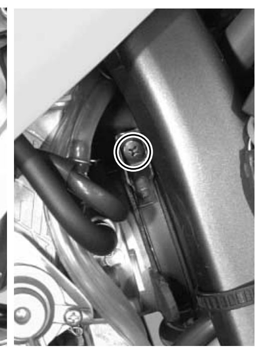
- Remove the muffler. (☞ 3-5)
- Remove the battery. (DR-Z400E) (☞ 7-30)
- Remove the clamps.



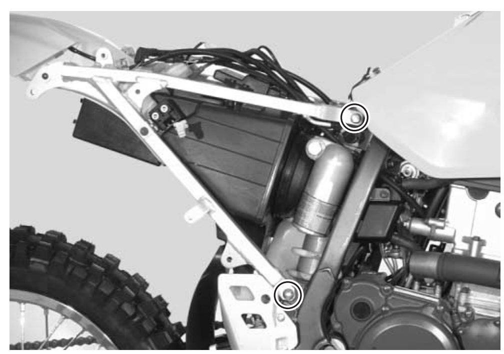
- Disconnect the taillight coupler ①, starter relay coupler ② (DR-Z400E), and starter relay lead wires ③ (DR-Z400E).



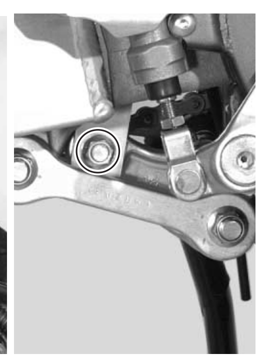
- Disconnect the air cleaner breather hose and loosen the carburetor clamp.

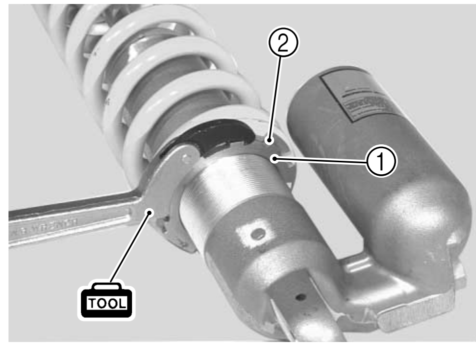
- Remove the seat rail with air cleaner case assembly.



- Support the motorcycle with a jack or wooden block and remove the rear shock absorber.

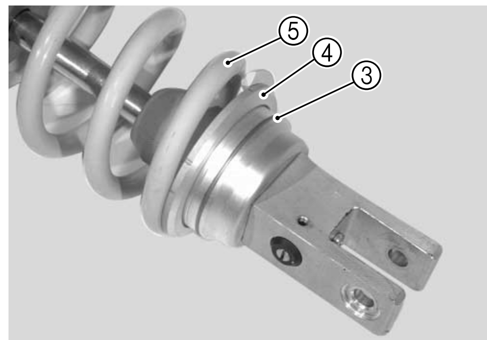



- Loosen the lockring ① and turn the adjuster ② using the special tool.



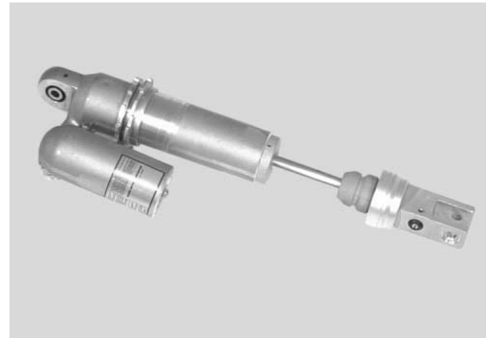
TOOL 09910-60611: Universal clamp wrench

- Remove the circlip ③, spring seat ④, and spring ⑤.

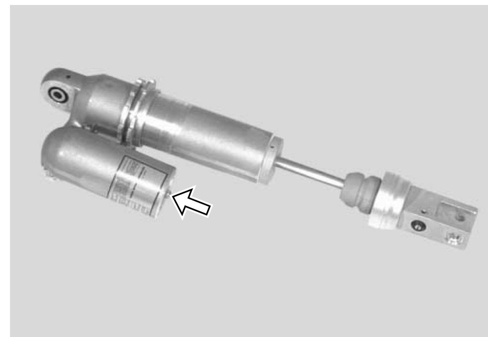


REAR SHOCK ABSORBER INSPECTION AND DISASSEMBLY

Inspect the rear shock absorber for damage and oil leakage. If any damages are found, replace the spring or rear shock absorber with a new one.



REAR SHOCK ABSORBER DISPOSAL

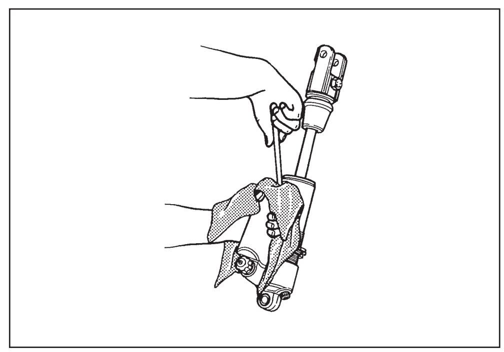


⚠ WARNING

* **The rear shock absorber unit contains high-pressure nitrogen gas.**
* **Mishandling can cause explosion.**
* **Keep away from fire and heat. High gas pressure caused by heat can cause an explosion.**
* **Release gas pressure before disposing.**

GAS PRESSURE RELEASE

- Remove the valve cap.
- Press the valve with a screwdriver to bleed out the nitrogen gas.



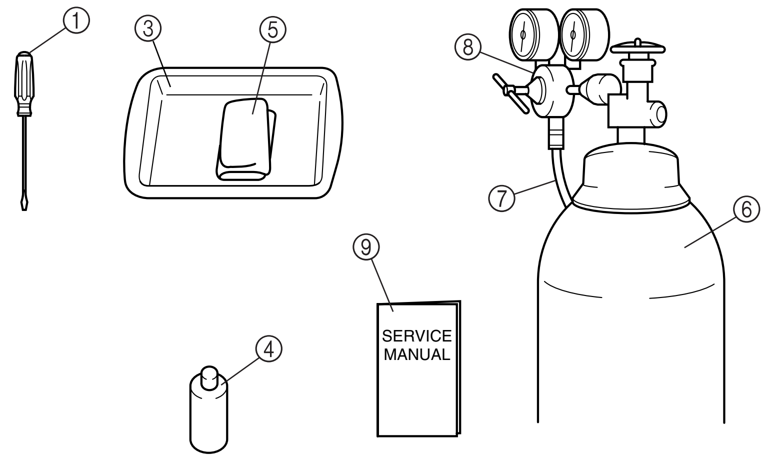
⚠ WARNING

* **Releasing high pressure gas from the rear shock absorber unit can be hazardous. Never perform any servicing until the nitrogen gas pressure has been released from the rear shock absorber unit.**
* **When releasing the gas pressure, place a rag over the gas valve and use the tip of a screwdriver to press the valve. Do not use your finger to depress the gas valve, and be sure to direct the valve away from your face and body.**
* **Be sure to always wear eye protection when performing this procedure.**

OIL REPLACEMENT PROCEDURE

TOOLS AND EQUIPMENT

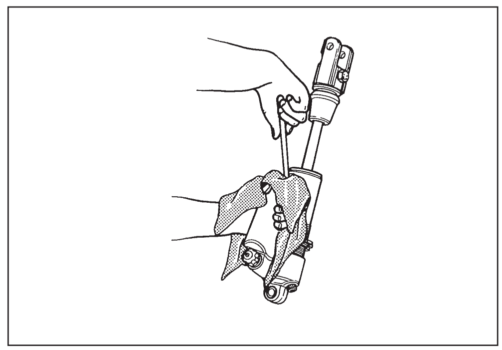
- The following tools and equipment are required to perform oil replacement.



① Screwdriver or small punch
② Vise*
③ Drain pan
④ Specified shock oil (SS-25)
⑤ Rags
⑥ Nitrogen tank
⑦ Filler hose and nozzle
⑧ Regulator assembly
⑨ Service manual
* Not shown in the illustration

OIL REPLACEMENT

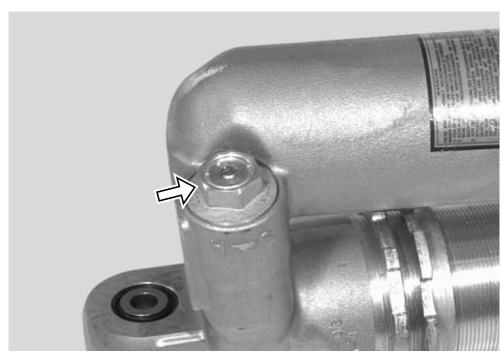
- Remove the rear shock absorber unit from the frame (☞ 6-33), and then clean and dry it.
- Remove the spring from the rear shock absorber unit. (☞ 6-34)



NOTE:

∗ *Inspect the rear shock absorber unit for oil leakage.*
∗ *Be sure to fully turn the rebound damping force adjusting screw counterclockwise, so that the rear suspension oil can be poured out easily.*

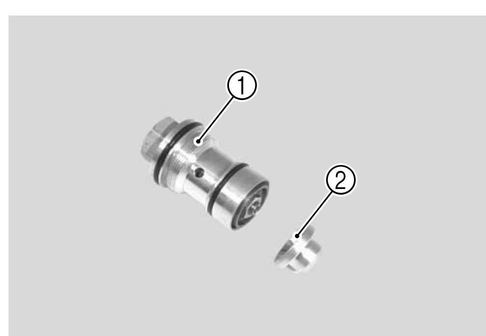
- Remove the valve cap, and then press the valve with a screwdriver to bleed out nitrogen gas.



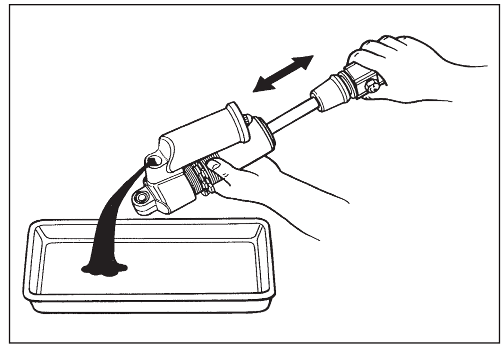
⚠ WARNING

∗ **Releasing high pressure gas from the rear shock absorber unit can be hazardous. Never perform any servicing until the nitrogen gas pressure has been released from the rear shock absorber unit.**
∗ **When releasing the gas pressure, place a rag over the gas valve and use the tip of a screwdriver to press the valve. Do not use your finger to depress the gas valve, and be sure to direct the valve away from your face and body.**
∗ **Be sure to always wear eye protection when performing this procedure.**

- Remove the compression adjuster assembly ① and the orifice ② from the rear shock absorber.



- Move the rod and drain the oil completely into a drain pan.
- Push the valve core again to equalize atmospheric pressure.



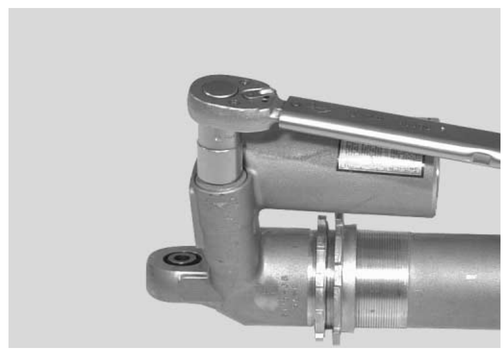
- Fill a drain pan with the specified rear suspension oil.
- Place the rear shock absorber into the drain pan so that the drain hole is submerged in the oil, and then fill the rear shock absorber with the oil by stroking the rod.



TOOL **99000-99001-S25:**
SUZUKI REAR SUSPENSION OIL SS-25

DATA **Oil capacity:**
Approximately 380 ml (12.8 US oz, 13.4 Imp oz)

- When fitting the orifice in the compression adjuster hole, face the conical side to the valve side.
- Tighten the compression adjuster assembly to the specified torque.



⚠ CAUTION

Replace the remove O-rings with new ones.

Compression adjuster assembly:
30 N·m (3.0 kgf-m, 21.5 lb-ft)

- Fill the rear shock absorber unit with nitrogen gas.

DATA **Rear shock absorber gas pressure:**
900 kPa (9.0 kgf/cm^2, 128 psi)

- Tighten the gas valve cap.

⚠ WARNING

∗ Use of flammable gas for pressuring the rear shock absorber unit can be hazardous. Flammable gas such as gas welding oxygen can create a fire hazard.
∗ Use nitrogen gas. If nitrogen gas is not available, compressed air free from water can be substituted.
∗ Applying too much pressure to the rear shock absorber unit may rupture the rear shock absorber unit.
∗ Be sure to fill the rear shock absorber unit to the specified pressured.

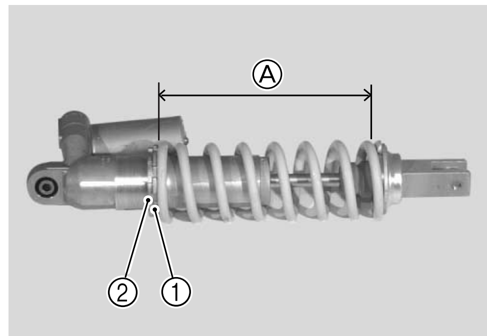
CAUTION

Riding the motorcycle with abnormal gas pressure can damage the rear shock absorber unit. Low gas pressure can result in oil leakage. Abnormal gas pressure cannot provide normal performance of the rear shock absorber.
Be sure to fill the rear shock absorber unit to the specified pressure.

REAR SHOCK ABSORBER REASSEMBLY AND REMOUNTING

Reassemble and remount the rear shock absorber in the reverse order of removal and disassembly. Pay special attention to the following points:

- Install the spring, spring seat, and circlip.
- Turn the adjuster ① to obtain the spring length Ⓐ of 258.0 mm (10.16 in).
- Tighten the lock ring ② to the specified torque.



Rear shock absorber lock ring:
90 N·m (9.0 kgf-m, 65.0 lb-ft)

SPRING SETTING TABLE

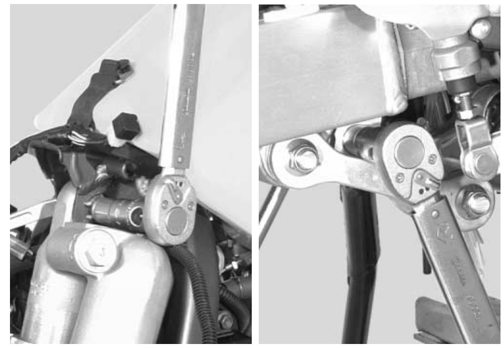
Spring preset length		
Standard	Soft	Hard
258.0 mm (10.16 in)	259.5 mm (10.22 in)	247.5 mm (9.74 in)

CAUTION

Do not set the spring less than 247.5 mm (9.74 in).

- Tighten the rear shock absorber upper and lower mounting nut to the specified torque.

Rear shock absorber upper and lower mounting nut: 55 N·m (5.5 kgf-m, 40.0 lb-ft)



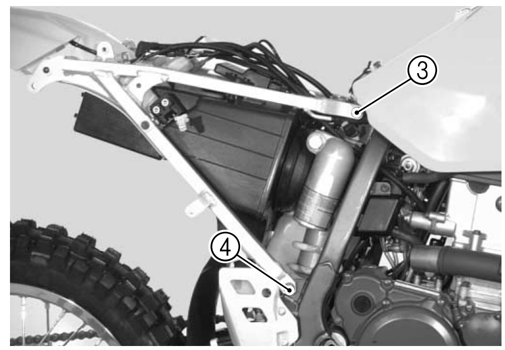
- Apply THREAD LOCK SUPER "1303" to the seat rail lower mounting bolt ④.

99000-32030: THREAD LOCK SUPER "1303"

- Tighten the seat rail upper mounting nut ③ and lower mounting bolts ④ to the specified torque.

Seat rail upper mounting nut: 35 N·m (3.5 kgf-m, 25.5 lb-ft)

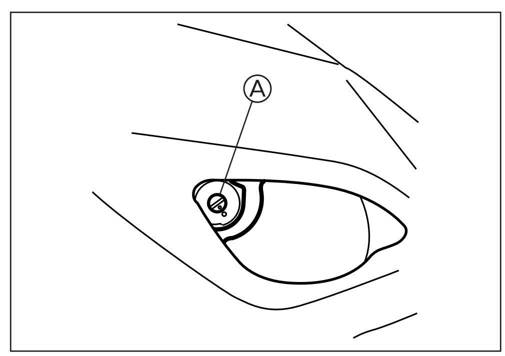
Seat rail lower mounting bolt: 35 N·m (3.5 kgf-m, 25.5 lb-ft)

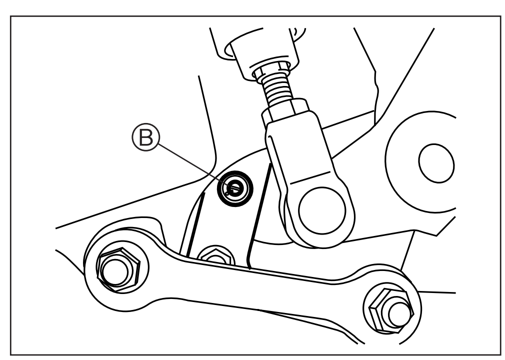


REAR SHOCK ABSORBER DAMPING FORCE ADJUSTMENT

After installing the rear suspension, adjust the rebound damping force and compression damping force as follows.
Fully turn the damping adjuster clockwise to the hard setting position, and then turn it out to the standard setting position.

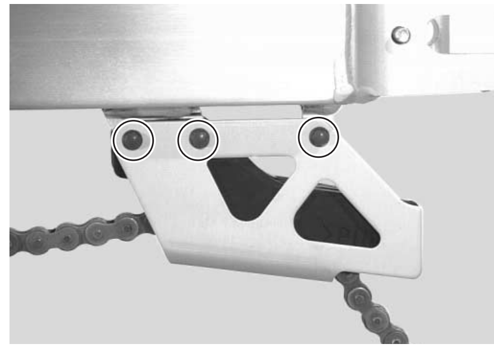
Standard setting position:
Compression damping force adjuster Ⓐ: 12 clicks out
Rebound damping force adjuster Ⓑ: 13 clicks out



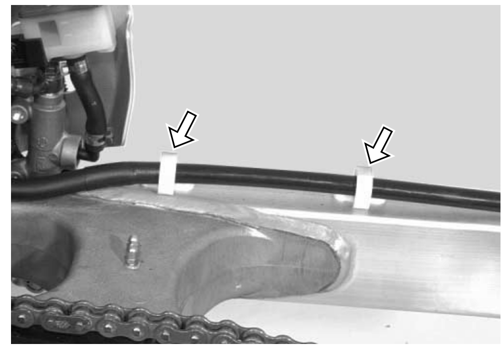


REAR SWINGARM AND CUSHION LEVER REMOVAL

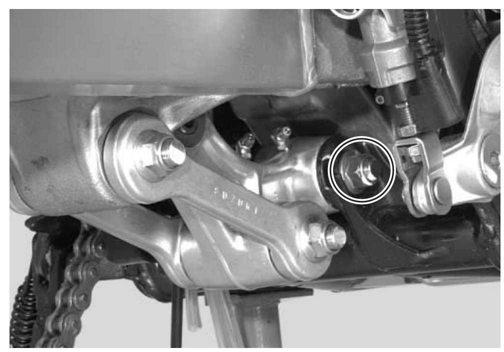
- Remove the rear wheel. (☞ 6-27)
- Remove the rear shock absorber. (☞ 6-33 and 6-34)
- Remove the rear brake caliper. (☞ 6-57)
- Remove the drive chain guide.



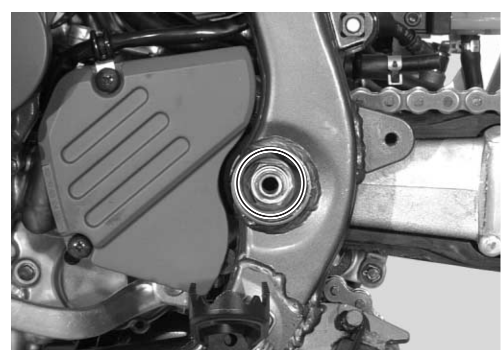
- Disconnect the brake hose from the brake hose guide.



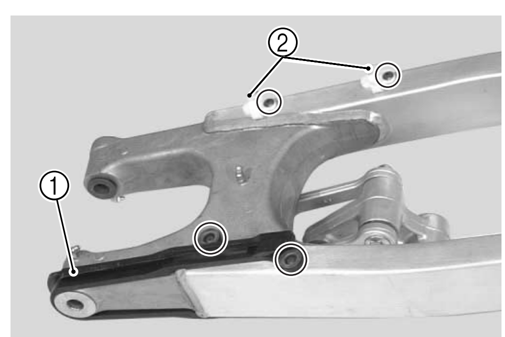
- Remove the cushion lever mounting bolt and nut.



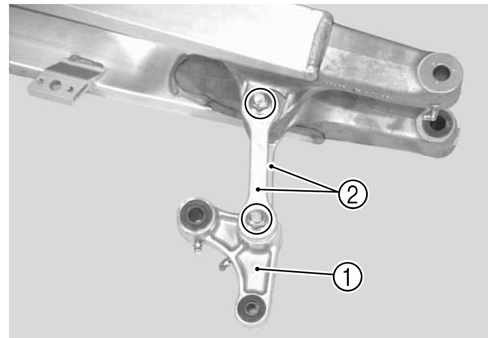
- Remove the swingarm pivot shaft nut and pivot shaft.
- Remove the rear suspension assembly.



- Remove the chain buffer ① and brake hose guide ②.



- Remove the cushion lever ① and cushion lever rods ②.



INSPECTION AND DISASSEMBLY

SPACERS

- Remove the dust seals, washers and spacers from the swingarm and cushion lever.

Inspect the spacers for any flaws or other damage. If any damages are found, replace the spacers with new ones.



⚠ CAUTION

Replace the removed dust seals with new ones.

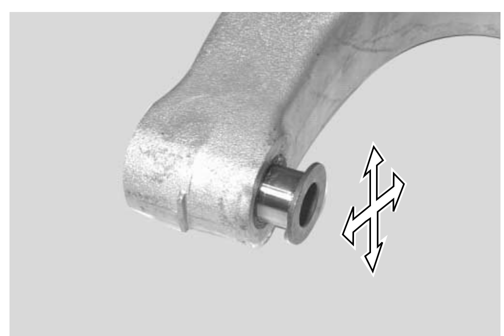
CHAIN BUFFER

Inspect the chain buffer for wear and damage. If any damages are found, replace the chain buffer with a new one.



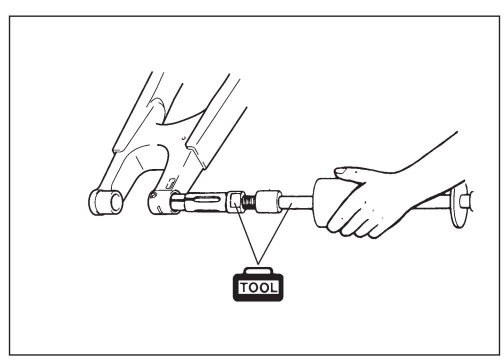
SWINGARM NEEDLE BEARINGS

Insert the spacers into the needle bearings, move the spacer up and down and check for any play. If there is excessive play, replace the bearings with new ones.



- Remove the swingarm needle bearings using the special tools.

TOOL **09923-74510: Bearing remover**
09930-30102: Sliding hammer



⚠ CAUTION

Replace the removed needle bearings with new ones.

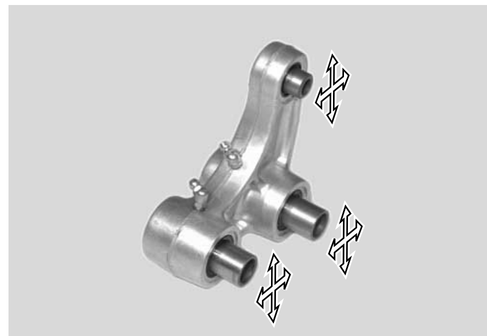
SWINGARM

Inspect the swingarm for damage. If any damages are found, replace the swingarm with a new one.



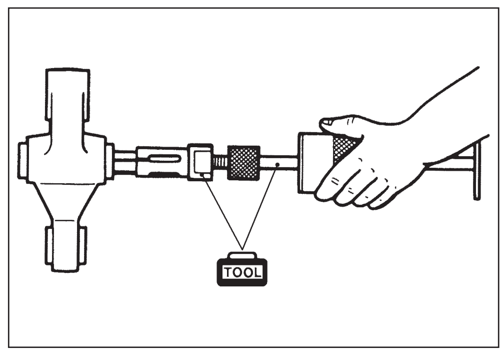
CUSHION LEVER NEEDLE BEARINGS

Insert the spacers into the needle bearings, move the spacer up and down and check for any play. If there is excessive play, replace the bearings with new ones.



- Remove the cushion lever needle bearings using the special tools.

TOOL **09923-73210: Bearing remover**
09930-30102: Sliding hammer



⚠ CAUTION

Replace the removed needle bearings with new ones.

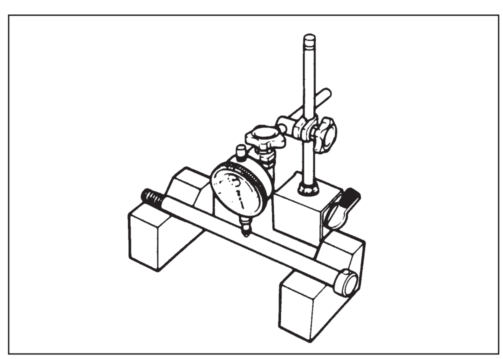
CUSHION LEVER AND CUSHION LEVER RODS

Inspect the cushion lever and cushion lever rods for damage. If any damages are found, replace the cushion lever and cushion lever rods with new ones.



PIVOT SHAFT

Measure the pivot shaft runout using the dial gauge. If the runout exceeds the service limit, replace the pivot shaft.



TOOL **09900-20606: Dial gauge (1/100 mm)**
09900-20701: Magnetic stand
09900-21304: V-block set (100 mm)

DATA **Swingarm pivot shaft runout**
Service Limit: 0.3 mm (0.01 in)

REASSEMBLY AND REMOUNTING

Reassemble and remount the rear suspension in the reverse order of removal and disassembly. Pay special attention to the following points:

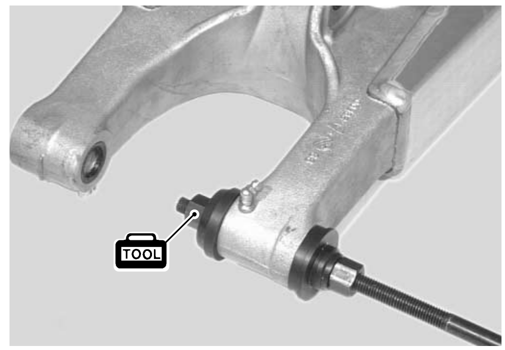
SWINGARM NEEDLE BEARINGS

- Apply SUZUKI SUPER GREASE "A" to the spacers, dust seals and needle bearings.

For USA
99000-25030: SUZUKI SUPER GREASE "A"
For the other countries
99000-25010: SUZUKI SUPER GREASE "A"

- Press the needle bearings into the swingarm pivot using the special tool.

TOOL 09941-34513: Steering outer race installer



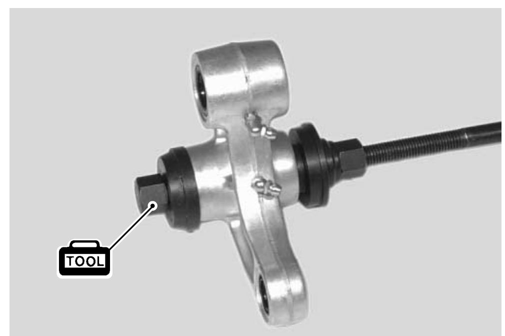
CUSHION LEVER NEEDLE BEARINGS

- Apply SUZUKI SUPER GREASE "A" to the spacers and needle bearings.

For USA
99000-25030: SUZUKI SUPER GREASE "A"
For the other countries
99000-25010: SUZUKI SUPER GREASE "A"

- Press the needle bearings into the cushion lever using the special tool.

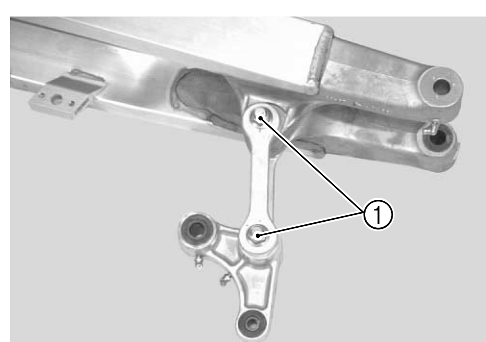
TOOL 09941-34513: Steering outer race installer



REAR SUSPENSION

- Tighten the cushion lever rod mounting nuts ① to the specified torque.

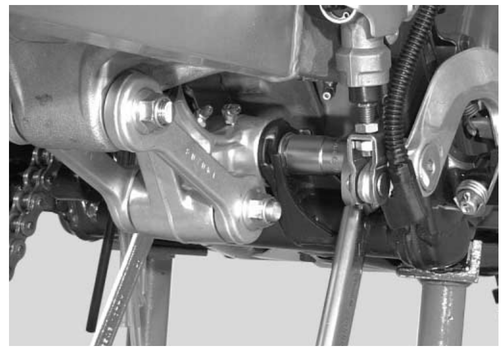
Cushion lever rod mounting nut:
100 N·m (10.0 kgf·m, 72.5 lb-ft)





- Tighten the swingarm pivot shaft nut to the specified torque.

Pivot shaft nut: 77 N·m (7.7 kgf-m, 55.5 lb-ft)



- Tighten the cushion lever mounting nut to the specified torque.

Cushion lever mounting nut:
100 N·m (10.0 kgf·m, 72.5 lb-ft)

FINAL INSPECTION AND ADJUSTMENT

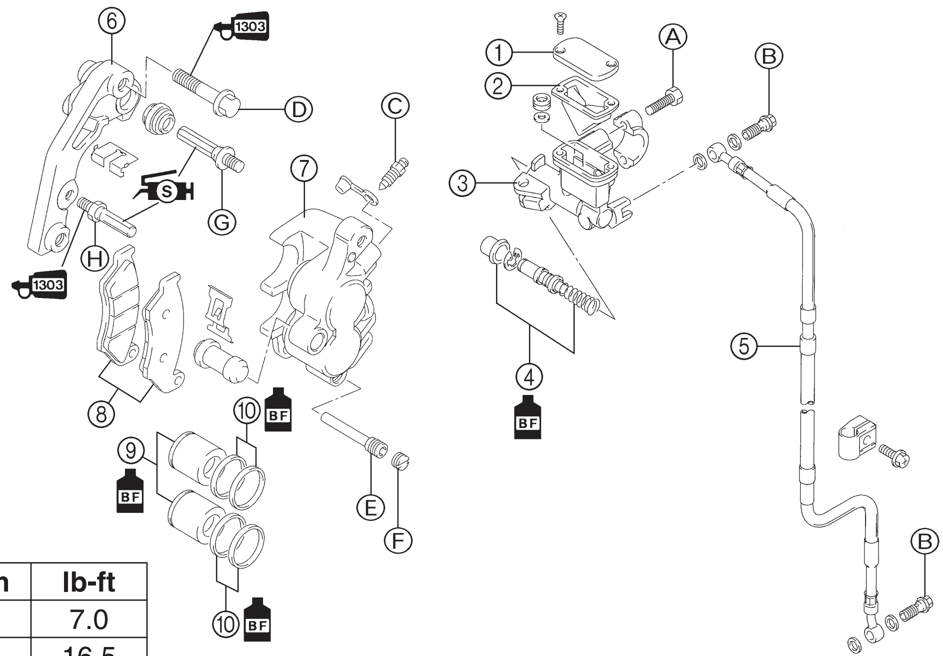
After installing the rear wheel, adjust the following before riding.

∗ Drive chain .... ☞ 2-16 to 2-17
∗ Tire pressure .... ☞ 2-22

FRONT BRAKE
CONSTRUCTION

① Cap
② Diaphragm
③ Master cylinder
④ Piston set
⑤ Brake hose
⑥ Caliper holder
⑦ Caliper
⑧ Pad set
⑨ Piston
⑩ Piston and dust seal

Ⓐ Master cylinder mounting bolt
Ⓑ Brake hose union bolt
Ⓒ Air bleeder valve
Ⓓ Brake caliper mounting bolt
Ⓔ Brake pad mounting pin
Ⓕ Plug
Ⓖ Caliper axle
Ⓗ Caliper axle



ITEM	N·m	kgf-m	lb-ft
Ⓐ	10	1.0	7.0
Ⓑ	23	2.3	16.5
Ⓒ	7.5	0.75	5.5
Ⓓ	26	2.6	19.0
Ⓔ	18	1.8	13.0
Ⓕ	2.5	0.25	1.8
Ⓖ	23	2.3	16.5
Ⓗ	13	1.3	9.5

⚠ WARNING

- **The brake system is filled with an glycol-based brake fluid, which is classified DOT 4. Do not use or mix other types of brake fluid, such as silicone-based and petroleum-based brake fluids when refilling the brake system, otherwise serious damage to the brake system will result.**
- **Do not use any brake fluid taken from old, used, or unsealed containers.**
- **Do not reuse brake fluid left over from the last servicing or which has been stored for a long period of time.**
- **When storing brake fluid, make sure to seal the container completely and keep it out of the reach of children.**
- **When replenishing brake fluid, make sure not to get any dust or other foreign materials in the fluid.**
- **When washing brake components, always use new brake fluid. Do not use cleaning solvent.**
- **A contaminated brake disc or brake pad reduces braking performance. Discard contaminated pads and clean the brake disc with high-quality brake cleaner or a neutral detergent.**

⚠ CAUTION

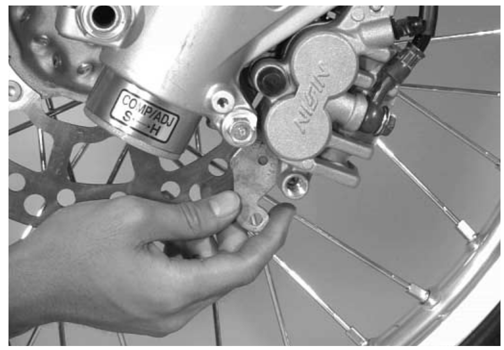
Handle brake fluid with care: the fluid reacts chemically with paint, plastics, rubber material, etc.

BRAKE PAD REPLACEMENT

- Remove the brake pad mounting pin.



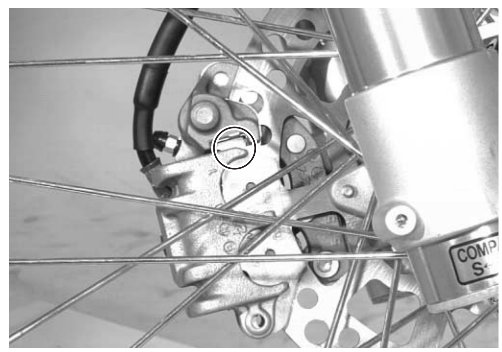
- Remove the brake pads.



⚠ CAUTION

∗ Do not operate the brake lever during or after brake pad removal.
∗ Replace the brake pads as a set, otherwise braking performance will be adversely affected.

- Install the new brake pads.



⚠ WARNING

Make sure that the brake pad is properly engaged with the guide plate as shown in the photograph.

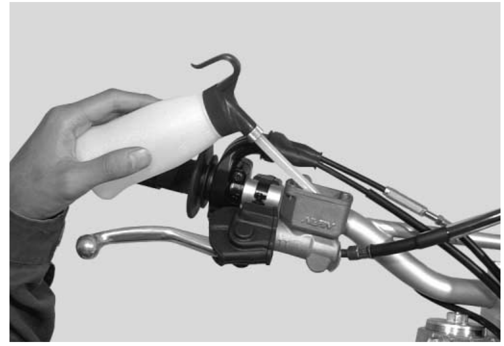
- Tighten the brake pad mounting pin to the specified torque.



Brake pad mounting pin: 18 N·m (1.8 kgf-m, 13.0 lb-ft)

NOTE:
After replacing the brake pads, pump the brake lever a few times to check for proper brake operation and then check the brake fluid level.

BRAKE FLUID REPLACEMENT



- Place the motorcycle on a level surface and keep the handlebar straight.
- Remove the master cylinder reservoir cap and diaphragm.
- Remove as much old brake fluid as possible.
- Fill the reservoir with new brake fluid.

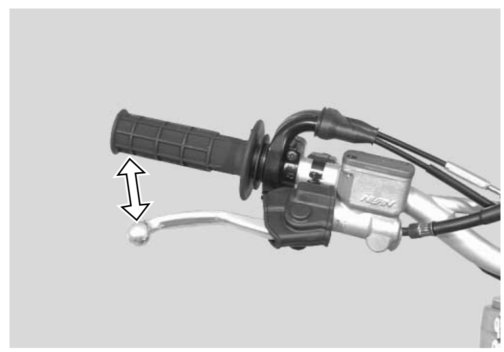
BF **Specification and classification: DOT 4**



- Connect a clear hose to the air bleeder valve and insert the other end of the hose into a receptacle.
- Loosen the air bleeder valve and pump the brake lever until the old brake fluid is completely out of the brake system.
- Close the air bleeder valve and disconnect the clear hose. Fill the reservoir with new brake fluid to the upper end of the inspection window.

⚠ CAUTION

Bleed air from the brake system.
(☞ 2-19 and 2-20)



BRAKE CALIPER REMOVAL AND DISASSEMBLY

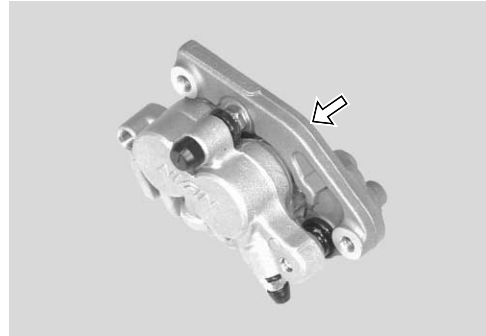


- Disconnect the brake hose from the brake caliper by removing the brake hose union bolt ① and allow the brake fluid to drain into a suitable receptacle.
- Remove the brake caliper by removing the brake caliper mounting bolts ②.

⚠ WARNING

- ∗ **Never reuse the brake fluid left over from previous servicing or which has been stored for long period of time, otherwise serious damage to the brake system will result.**
- ∗ **Brake fluid, if it leaks, will interfere with safe running and discolor painted surfaces. Check the brake hose and hose joints for cracks and oil leakage.**

- Remove the brake pads. (☞ 6-46)
- Remove the brake caliper holder.



- Remove the spring.



- Place a rag over the brake caliper pistons to prevent them from popping out, and then force out the pistons using compressed air.

⚠ CAUTION

Do not use extremely high pressure air to remove the brake caliper pistons, otherwise damage to the pistons will result.



- Remove the dust seals and piston seals.

⚠ CAUTION

Do not reuse the dust seals and piston seals to prevent fluid leakage.



BRAKE CALIPER INSPECTION

BRAKE CALIPER

Inspect each brake caliper cylinder wall for nicks, scratches or other damage. If any damages are found, replace the brake caliper with a new one.

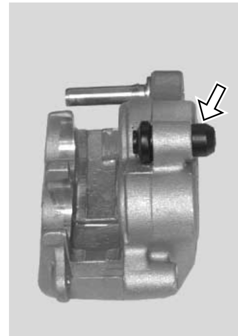


BRAKE CALIPER PISTONS

Inspect the brake caliper pistons for any scratches or other damage. If any damages are found, replace the piston with a new one.

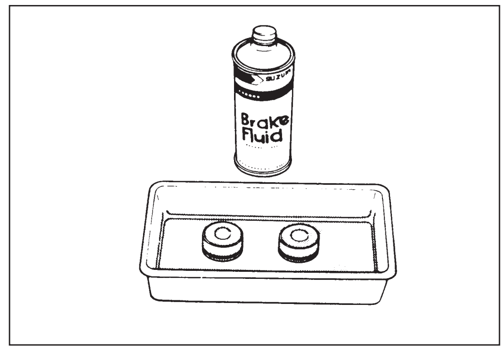
RUBBER PARTS

Replace the removed rubber parts with new ones.





BRAKE CALIPER REASSEMBLY AND REMOUNTING



Reassemble and remount the brake caliper in the reverse order of removal and disassembly. Pay special attention to the following points:

- Wash the caliper bores and pistons with the specified brake fluid. Thoroughly wash the dust seal grooves and piston seal grooves.

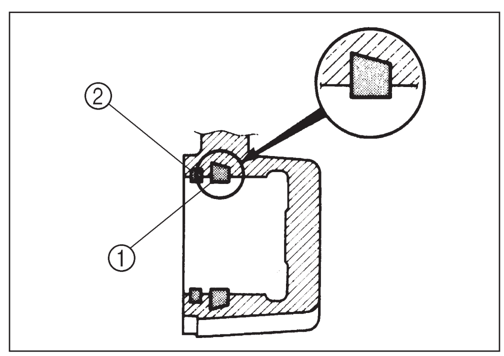
BF **Specification and classification: DOT 4**

⚠ CAUTION

- ∗ **Wash the brake caliper components with new brake fluid before reassembly.**
- ∗ **Do not wipe the brake fluid off after washing the components.**
- ∗ **When washing the components, use the specified brake fluid. Never use different types of fluid or cleaning solvents such as gasoline, kerosine, etc.**
- ∗ **Replace the removed piston seals and dust seals with new ones.**
- ∗ **Apply brake fluid to all of the seals, brake caliper bores and pistons before reassembly.**

PISTON SEALS

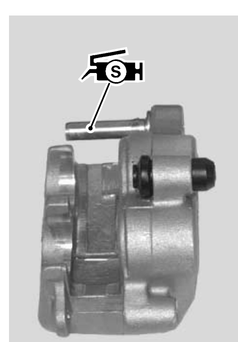
- Install the piston seals ① and dust seals ② as shown.

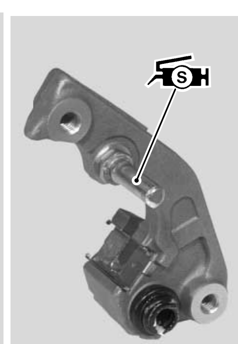


BRAKE CALIPER HOLDER

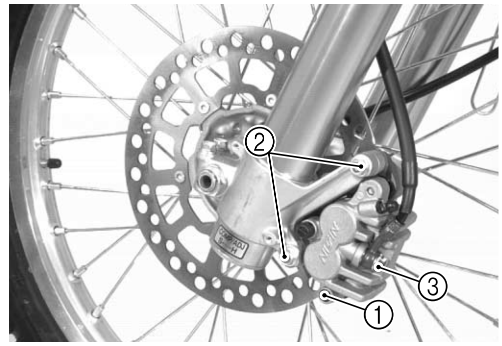
- Apply SUZUKI SILICON GREASE to the brake caliper holder.

99000-25100: SUZUKI SILICONE GREASE





- Tighten the brake pad mounting pin ①, brake caliper mounting bolts ②, and brake hose union bolt ③ to the specified torque.



Brake pad mounting pin: 18 N·m (1.8 kgf-m, 13.0 lb-ft)
Brake caliper mounting bolt: 26 N·m (2.6 kgf-m, 19.0 lb-ft)
Brake hose union bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

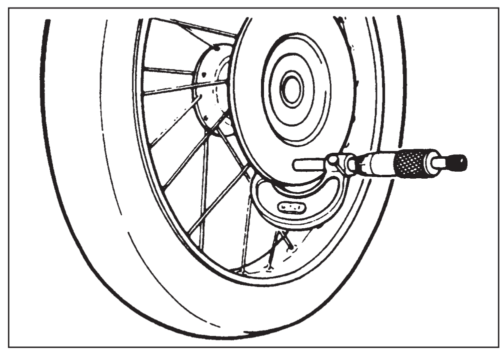
NOTE:
Before remounting the brake caliper, push the brake caliper pistons all the way into the caliper.

⚠ CAUTION

Bleed air from the system after reassembling the brake caliper. (☞ 2-19 and 2-20)

BRAKE DISC INSPECTION

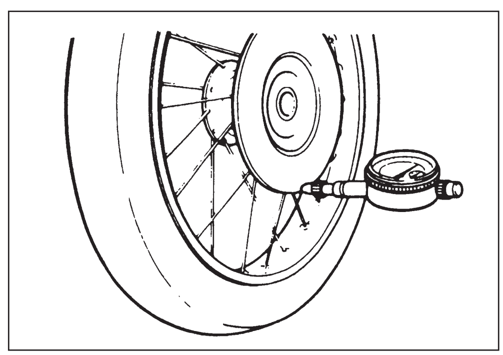
Check the brake disc for cracks or damage and measure the thickness using the micrometer. If any damages are found or if the thickness is less than the service limit, replace the brake disc with a new one.



TOOL **09900-20205: Micrometer (0 – 25 mm)**

DATA **Brake disc thickness**
Service Limit: 2.5 mm (0.098 in)

Measure the runout using the dial gauge. If the runout exceeds the service limit, replace the brake disc with a new one.



TOOL **09900-20606: Dial gauge (1/100 mm)**
09900-20701: Magnetic stand

DATA **Brake disc runout**
Service Limit: 0.3 mm (0.012 in)

- If either measurement exceeds the service limit, replace the brake disc with a new one. (☞ 6-5)

MASTER CYLINDER REMOVAL AND DISASSEMBLY

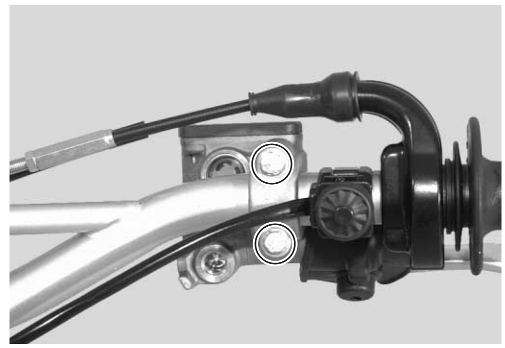
- Place a rag underneath the brake hose union bolt on the master cylinder to catch any spilt brake fluid. Remove the brake hose union bolt and disconnect the brake hose.



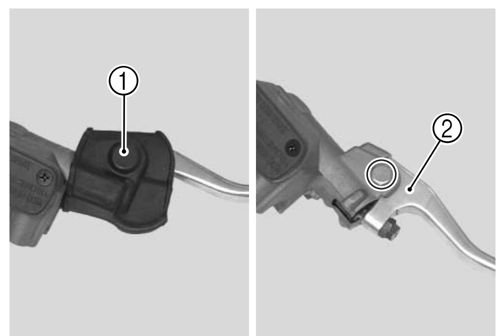
⚠ CAUTION

Immediately wipe off any brake fluid contacting any part of the motorcycle.The brake fluid reacts chemically with paint, plastics, rubber materials, etc., and will damage them severely.

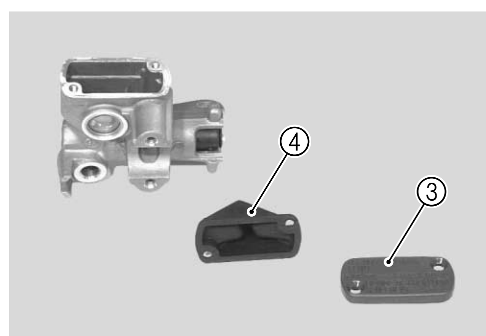
- Remove the master cylinder assembly.



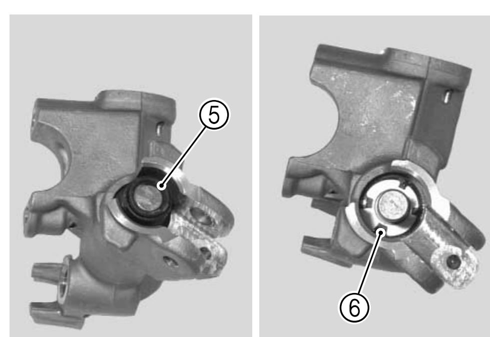
- Remove the brake lever cover ① and brake lever ②.



- Remove the reservoir cap ③ and diaphragm ④.
- Drain the brake fluid.



- Pull the dust boot ⑤ out and remove the circlip ⑥.



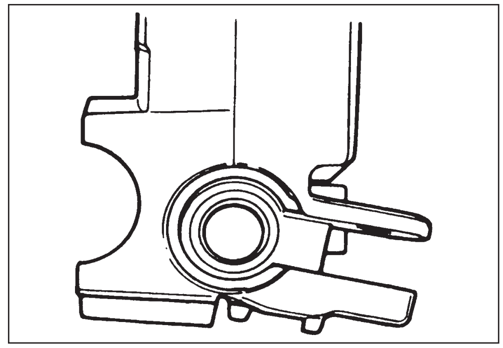
- Remove the piston assembly.



MASTER CYLINDER INSPECTION

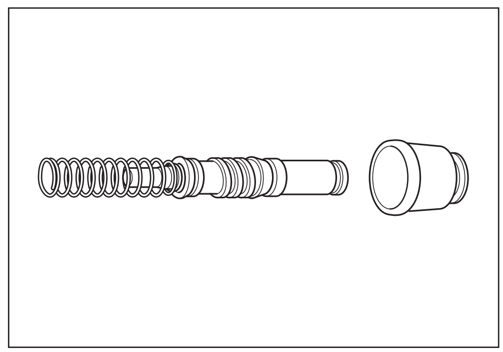
MASTER CYLINDER

Inspect the master cylinder bore for any scratches or damage. If any damages are found, replace the master cylinder with a new one.



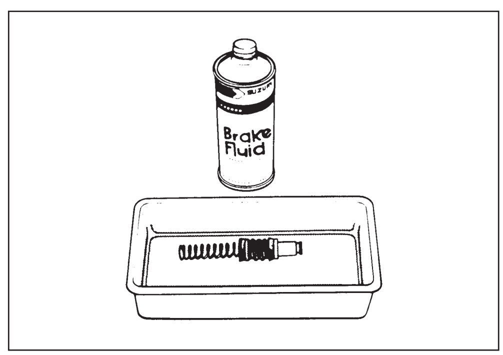
PISTON AND RUBBER PARTS

Inspect the piston surface, primary/secondary cup, and dust boot for any scratches, wear or damage. If any damages are found, replace the piston set with a new one.



MASTER CYLINDER REASSEMBLY AND REMOUNTING

Reassemble and remount the master cylinder in the reverse order of removal and disassembly. Pay special attention to the following points:

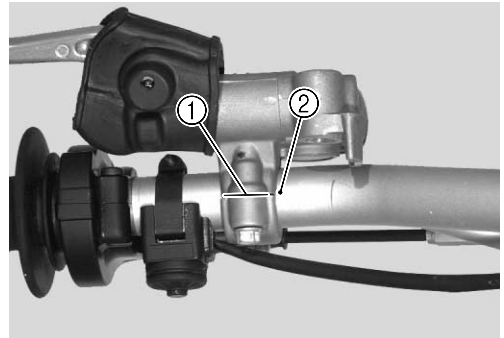


CAUTION

- * **Wash the master cylinder components with new brake fluid before reassembly.**
- * **Do not wipe the brake fluid off after washing the components.**
- * **When washing the components, use the specified brake fluid. Never use different types of fluid or cleaning solvents such as gasoline, kerosine, etc.**
- * **Apply brake fluid to the master cylinder bore and all of the master cylinder components before reassembly.**

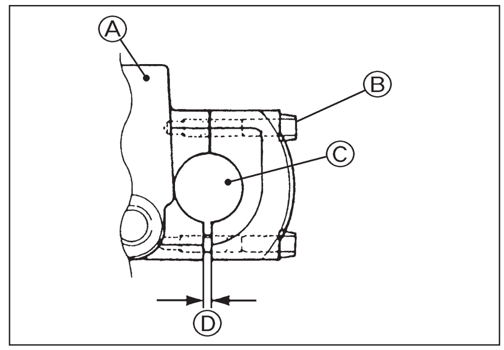
BF **Specification and classification: DOT 4**

- When remounting the master cylinder on the handlebar, align the master cylinder holder's mating surface ① with the punch mark ② on the handlebar, and then tighten the upper clamp bolt first.



Master cylinder clamp bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

Ⓐ Master cylinder
Ⓑ Master cylinder upper clamp bolt
Ⓒ Handlebar
Ⓓ Clearance



- Tighten the brake hose union bolt to the specified torque.



Brake hose union bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

CAUTION

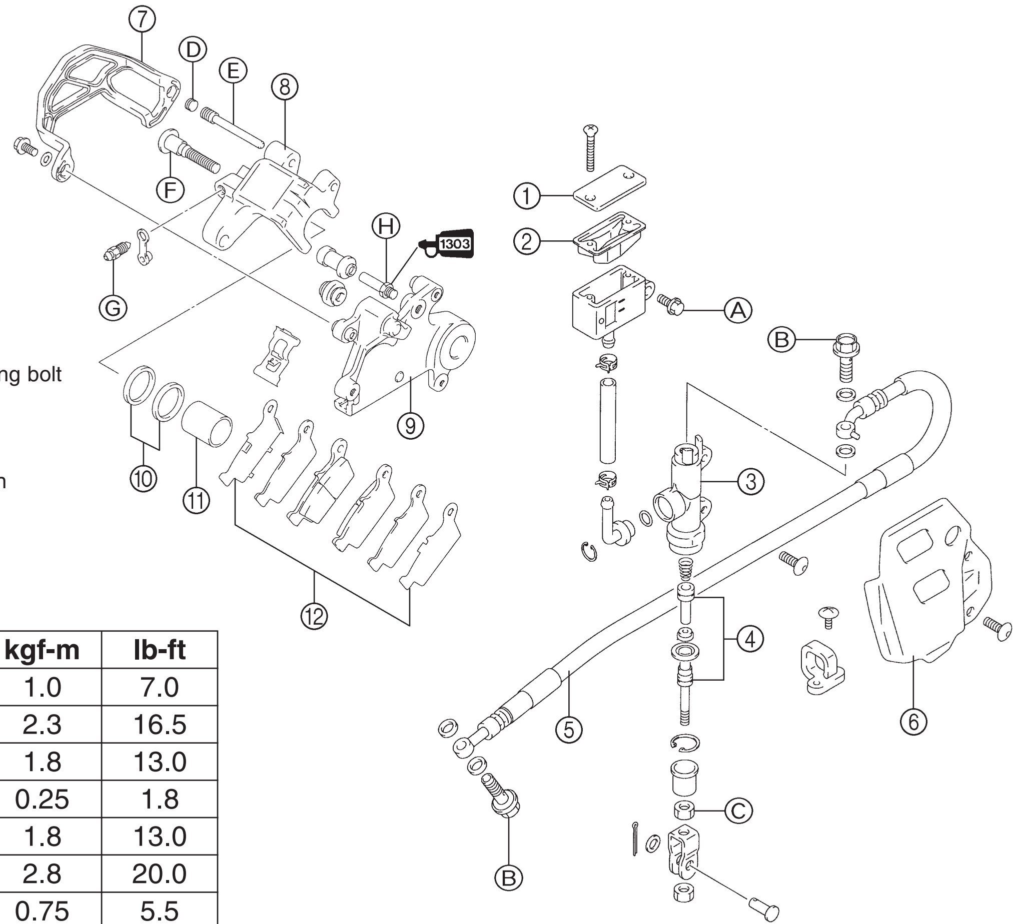
Bleed air from the brake system after reassembling the master cylinder. (☞ 2-19 and 2-20)

REAR BRAKE

CONSTRUCTION

① Cap
② Diaphragm
③ Master cylinder
④ Piston set
⑤ Brake hose
⑥ Reservoir cover
⑦ Caliper cover
⑧ Caliper
⑨ Caliper holder
⑩ Piston and dust seal
⑪ Piston
⑫ Pad set

Ⓐ Master cylinder mounting bolt
Ⓑ Brake hose union bolt
Ⓒ Rear brake rod locknut
Ⓓ Plug
Ⓔ Brake pad mounting pin
Ⓕ Caliper axle
Ⓖ Air bleeder valve
Ⓗ Caliper axle



ITEM	N·m	kgf-m	lb-ft
Ⓐ	10	1.0	7.0
Ⓑ	23	2.3	16.5
Ⓒ	18	1.8	13.0
Ⓓ	2.5	0.25	1.8
Ⓔ	18	1.8	13.0
Ⓕ	28	2.8	20.0
Ⓖ	7.5	0.75	5.5
Ⓗ	13	1.3	9.5

⚠ WARNING

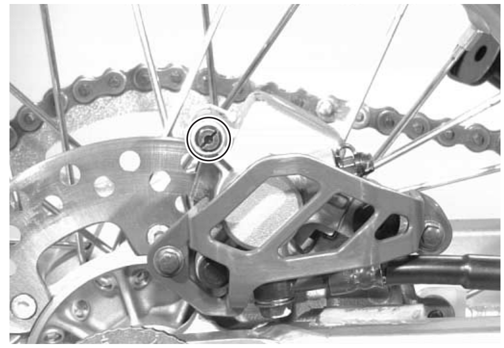
- **The brake system is filled with an glycol-based brake fluid, which is classified DOT 4. Do not use or mix other types of brake fluid, such as silicone-based and petroleum-based brake fluids when refilling the brake system, otherwise serious damage to the brake system will result.**
- **Do not use any brake fluid taken from old, used, or unsealed containers.**
- **Do not reuse brake fluid left over from the last servicing or which has been stored for a long period of time.**
- **When storing brake fluid, make sure to seal the container completely and keep it out of the reach of children.**
- **When replenishing brake fluid, make sure not to get any dust or other foreign materials in the fluid.**
- **When washing brake components, always use new brake fluid. Do not use cleaning solvent.**
- **A contaminated brake disc or brake pad reduces braking performance. Discard contaminated pads and clean the brake disc with high-quality brake cleaner or a neutral detergent.**

⚠ CAUTION

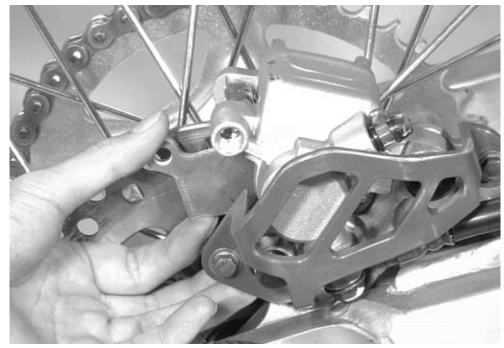
Handle brake fluid with care: the fluid reacts chemically with paint, plastics, rubber materials, etc.

BRAKE PAD REPLACEMENT

- Remove the brake pad mounting pin.



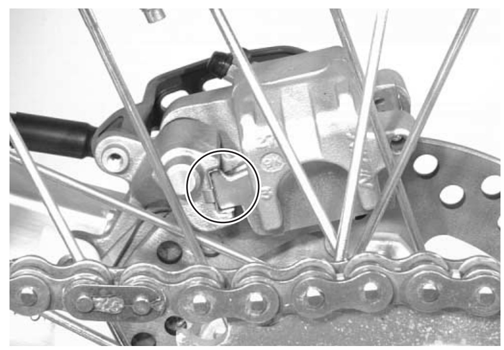
- Remove the brake pads.



⚠ CAUTION

∗ Do not operate the brake pedal during or after brake pad removal.
∗ Replace the brake pads as a set, otherwise braking performance will be adversely affected.

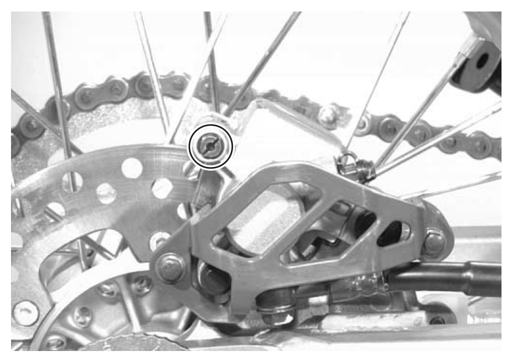
- Install the new brake pads.



⚠ WARNING

Make sure that the brake pad is properly engaged with the guide plate as shown in the photograph.

- Tighten the brake pad mounting pin to the specified torque.



Brake pad mounting pin: 18 N·m (1.8 kgf-m, 13.0 lb-ft)

NOTE:
After replacing the brake pads, pump the brake pedal a few times to check for proper brake operation and then check the brake fluid level.

BRAKE FLUID REPLACEMENT

- Remove the reservoir cover.



- Remove the reservoir cap and diaphragm.
- Replace the brake fluid. (☞ 6-46)

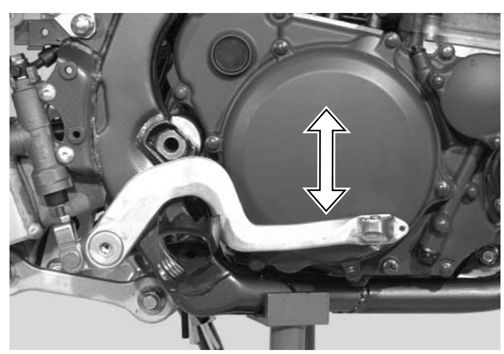


BF Specification and classification: DOT 4

⚠ CAUTION

Bleed air from the brake system.
(☞ 2-19 and 2-20)





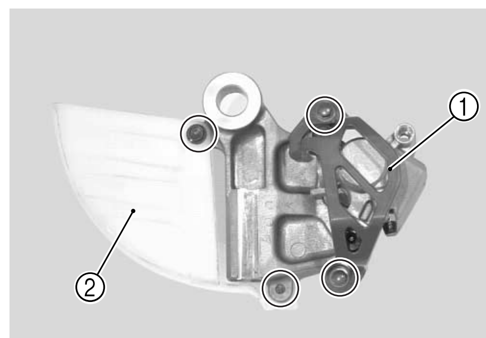
BRAKE CALIPER REMOVAL AND DISASSEMBLY



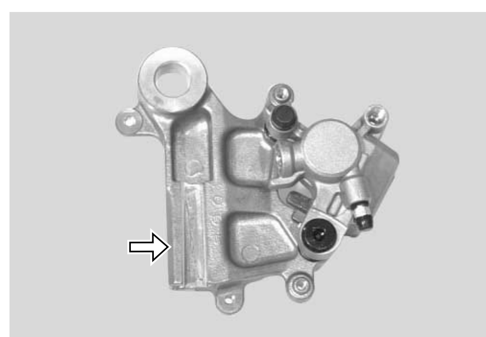
- Remove the rear wheel. (☞ 6-27)
- Disconnect the brake hose from the brake caliper by removing the brake hose union bolt and allow the brake fluid to drain into a suitable receptacle.
- Remove the brake caliper.

⚠ WARNING

- ∗ **Never reuse the brake fluid left over from previous servicing or which has been stored for long period of time, otherwise serious damage to the brake system will result.**
- ∗ **Brake fluid, if it leaks, will interfere with safe running and discolor painted surfaces. Check the brake hose and hose joints for cracks and oil leakage.**



- Remove the brake pads. (☞ 6-55)
- Remove the brake caliper cover ① and brake disc cover ②.



- Remove the brake caliper holder.



- Remove the spring.

* Place a rag over the brake caliper piston to prevent them from popping out and then force out the piston using compressed air.



CAUTION

Do not use extremely high pressure air to remove the brake caliper piston, otherwise damage to the piston will result.

* Remove the dust seals and piston seals.



CAUTION

Do not reuse the dust seals and piston seals to prevent fluid leakage.

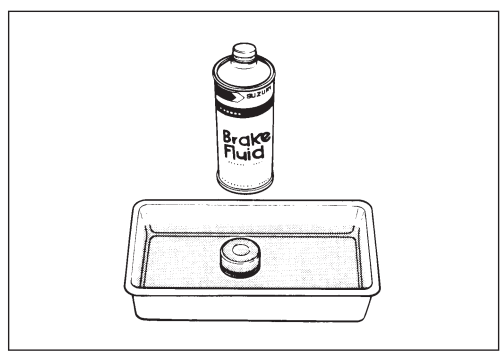
BRAKE CALIPER INSPECTION

BRAKE CALIPER .... ☞ 6-48
BRAKE CALIPER PISTON.. ☞ 6-48
RUBBER PARTS .... ☞ 6-49

BRAKE CALIPER REASSEMBLY AND REMOUNTING

Reassemble and remount the brake caliper in the reverse order of removal and disassembly. Pay special attention to the following points:

* Wash the caliper bores and pistons with the specified brake fluid. Thoroughly wash the dust seal grooves and piston seal grooves.



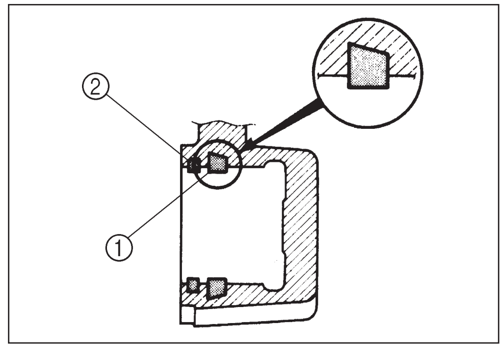
BF **Specification and classification: DOT 4**

CAUTION

* **Wash the brake caliper components with new brake fluid before reassembly.**
* **Do not wipe the brake fluid off after washing the components.**
* **When washing the components, use the specified brake fluid. Never use different types of fluid or cleaning solvents such as gasoline, kerosine, etc.**
* **Replace the removed piston seals and dust seals with new ones.**
* **Apply brake fluid to all of the seals, brake caliper bores and pistons before reassembly.**

PISTON SEAL

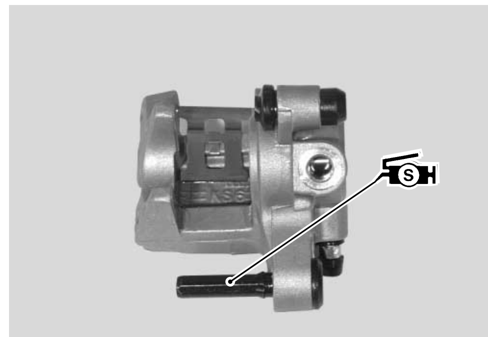
- Install the piston seal ① and dust seal ② as shown.



BRAKE CALIPER HOLDER

- Apply SUZUKI SILICON GREASE to the brake caliper holder.

99000-25100: SUZUKI SILICONE GREASE



- Tighten the brake hose union bolt to the specified torque.

Brake hose union bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

NOTE:
Before remounting the rear wheel, push the brake caliper pistons all the way into the caliper.



CAUTION

Bleed air from the system after remounting the rear wheel. (☞ 2-19 and 2-20)

BRAKE DISC INSPECTION

BRAKE DISC .... ☞ 6-50

MASTER CYLINDER REMOVAL AND DISASSEMBLY

- Remove the reservoir cover. (☞ 6-56)
- Remove the reservoir mounting bolt.



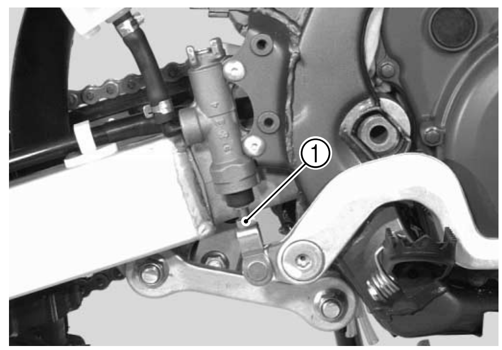
- Place a rag underneath the brake hose union bolt on the master cylinder to catch any spilt brake fluid. Remove the brake hose union bolt and disconnect the brake hose.



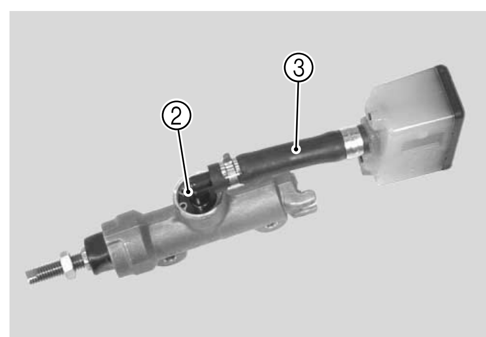
⚠ CAUTION

Immediately wipe off any brake fluid contacting any part of the motorcycle. The brake fluid reacts chemically with paint, plastics, rubber materials, etc., and will damage them severely.

- Loosen the locknut ① and remove the master cylinder assembly.

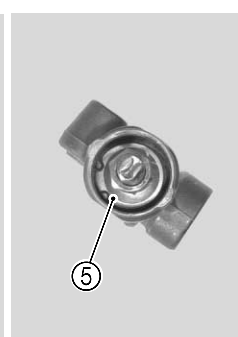


- Remove the circlip ② and reservoir assembly ③.

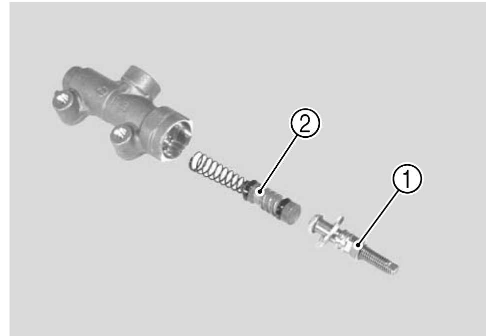


- Pull the dust boot ④ out and remove the circlip ⑤.





- Remove the push rod ① and piston assembly ②.



MASTER CYLINDER INSPECTION

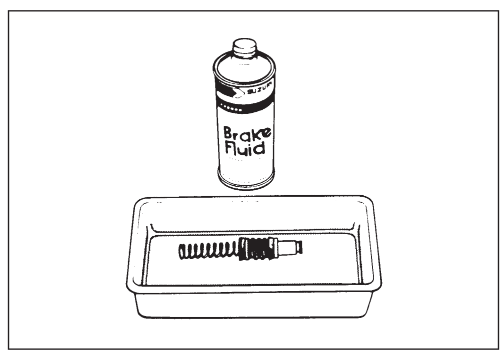
MASTER CYLINDER .... ☞ 6-52
PISTON AND RUBBER PARTS .... ☞ 6-52

MASTER CYLINDER REASSEMBLY AND REMOUNTING

Reassemble and remount the master cylinder in the reverse order of removal and disassembly. Pay special attention to the following points:

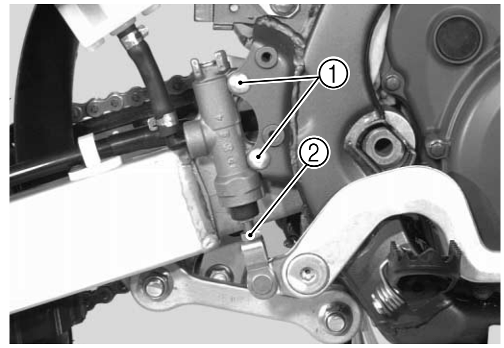
⚠ CAUTION

- **∗ Wash the master cylinder components with new brake fluid before reassembly.**
- **∗ Do not wipe the brake fluid off after washing the components.**
- **∗ When washing the components, use the specified brake fluid. Never use different types of fluid or cleaning solvents such as gasoline, kerosine, etc.**
- **∗ Apply brake fluid to the master cylinder bore and all of the master cylinder components before reassembly.**



BF **Specification and classification: DOT 4**

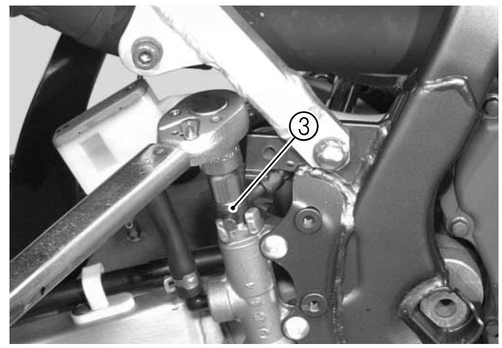
- Tighten the master cylinder mounting bolts ①, brake rod lock-nut ②, and brake hose union bolt ③ to the specified torque.



Master cylinder mounting bolt:
10 N·m (1.0 kgf-m, 7.0 lb-ft)
Brake rod locknut: 18 N·m (1.8 kgf-m, 13.0 lb-ft)
Brake hose union bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

CAUTION

Bleed air from the brake system after reassembling the master cylinder. (☞ 2-19 and 2-20)



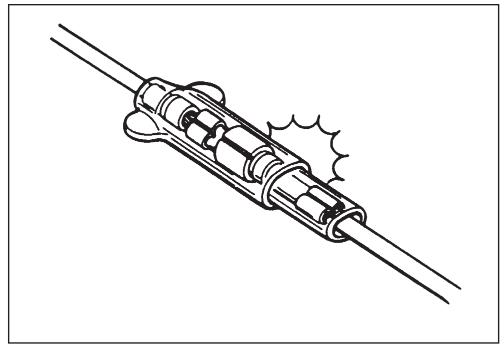
ELECTRICAL SYSTEM

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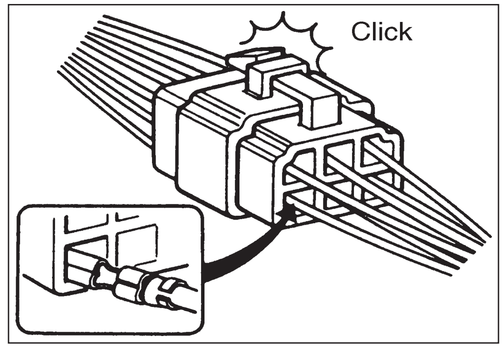
CAUTIONS IN SERVICING

CONNECTORS



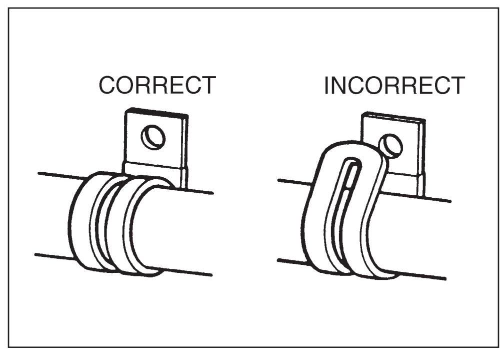
- When disconnecting a connector, be sure to hold the terminals; do not pull the lead wires.
- When connecting a connector, push it in so it is firmly attached.
- Inspect the connector for corrosion, contamination and any breakage in the cover.

COUPLERS



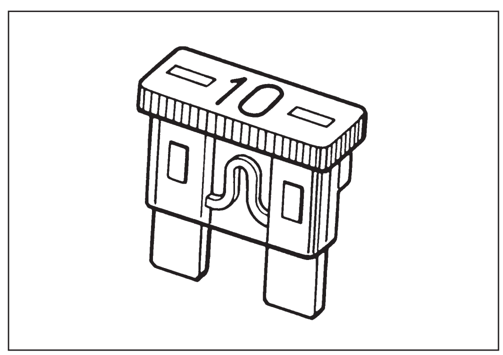
- With a lock-type coupler, be sure to release the lock before disconnecting it. When connecting a coupler, push it in until the lock clicks shut.
- When disconnecting a coupler, be sure to hold the coupler; do not pull the lead wires.
- Inspect each terminal on the coupler for looseness or bends.
- Inspect each terminal for corrosion and contamination.

CLAMPS



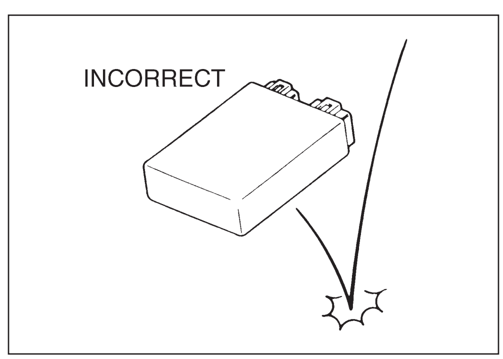
- Refer to the "WIRE HARNESS, CABLE, AND HOSE ROUTING" section for proper clamping procedures. (☞ 8-12 to 8-18)
- Bend the clamp properly, as shown in the illustration.
- When clamping the wire harness, do not allow it to hang down.
- Do not use wire or any substitutes for the band-type clamp.

FUSE (DR-Z400E)



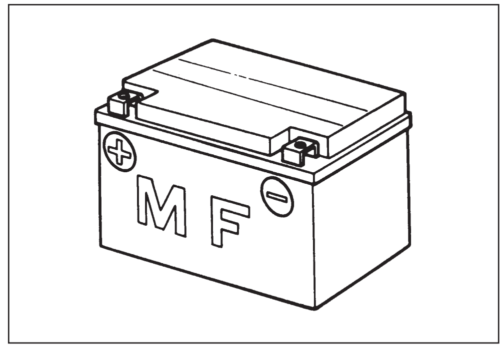
- When a fuse blows, always investigate the cause, correct the problem, and then replace the fuse.
- Do not use a fuse of a different capacity.
- Do not use any substitutes for the fuse (e.g., wire).

SEMICONDUCTOR EQUIPPED PARTS



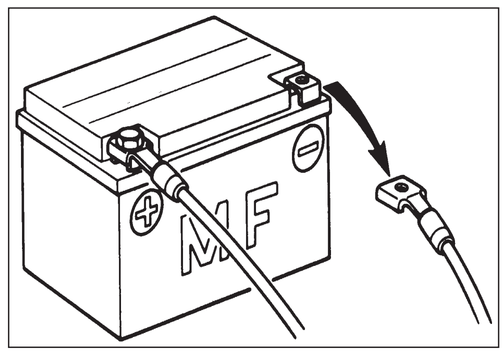
- Do not drop any part that contains a semiconductor (e.g., CDI unit, regulator/rectifier).
- When inspecting the part, follow the inspection instructions carefully. Neglecting proper procedures may cause this part to be damaged.

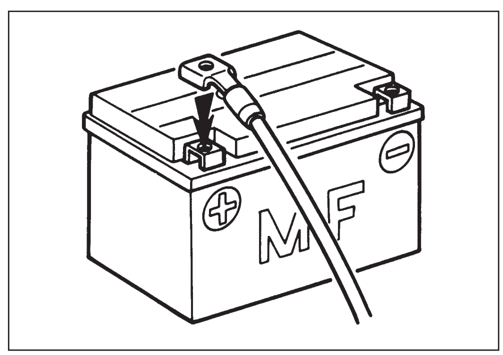
BATTERY (DR-Z400E)



- The battery has been pre-filled with electrolyte so there is no need to add fluid at any time.
- The MF battery used in this motorcycle does not require maintenance (e.g., electrolyte level inspection, distilled water replenishment).
- During normal charging, no hydrogen gas is produced. However, if the battery is overcharged, hydrogen gas may be produced. Therefore, make sure that there are no fire or spark sources (e.g., short circuit) nearby when charging the battery.
- Be sure to recharge the battery in a well-ventilated and open area.
- Note that the charging system for the MF battery is different from that of a conventional battery. Do not replace the MF battery with a conventional battery.

CONNECTING THE BATTERY (DR-Z400E)



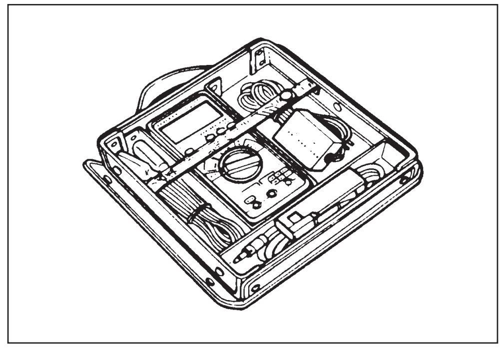


- When disconnecting terminals from the battery for disassembly or servicing, be sure to disconnect the ⊖ battery lead wire, first.
- When connecting the battery lead wires, be sure to connect the ⊕ battery lead wire, first.
- If the terminal is corroded, remove the battery, pour warm water over it and clean it with a wire brush.
- After connecting the battery, apply a light coat of grease to the battery terminals.
- Install the cover over the ⊕ battery terminal.

WIRING PROCEDURE

- Properly route the wire harness according to the “WIRE HARNESS, CABLE, AND HOSE ROUTING” section. (☞ 8-12 to 8-18)

USING THE MULTI CIRCUIT TESTER

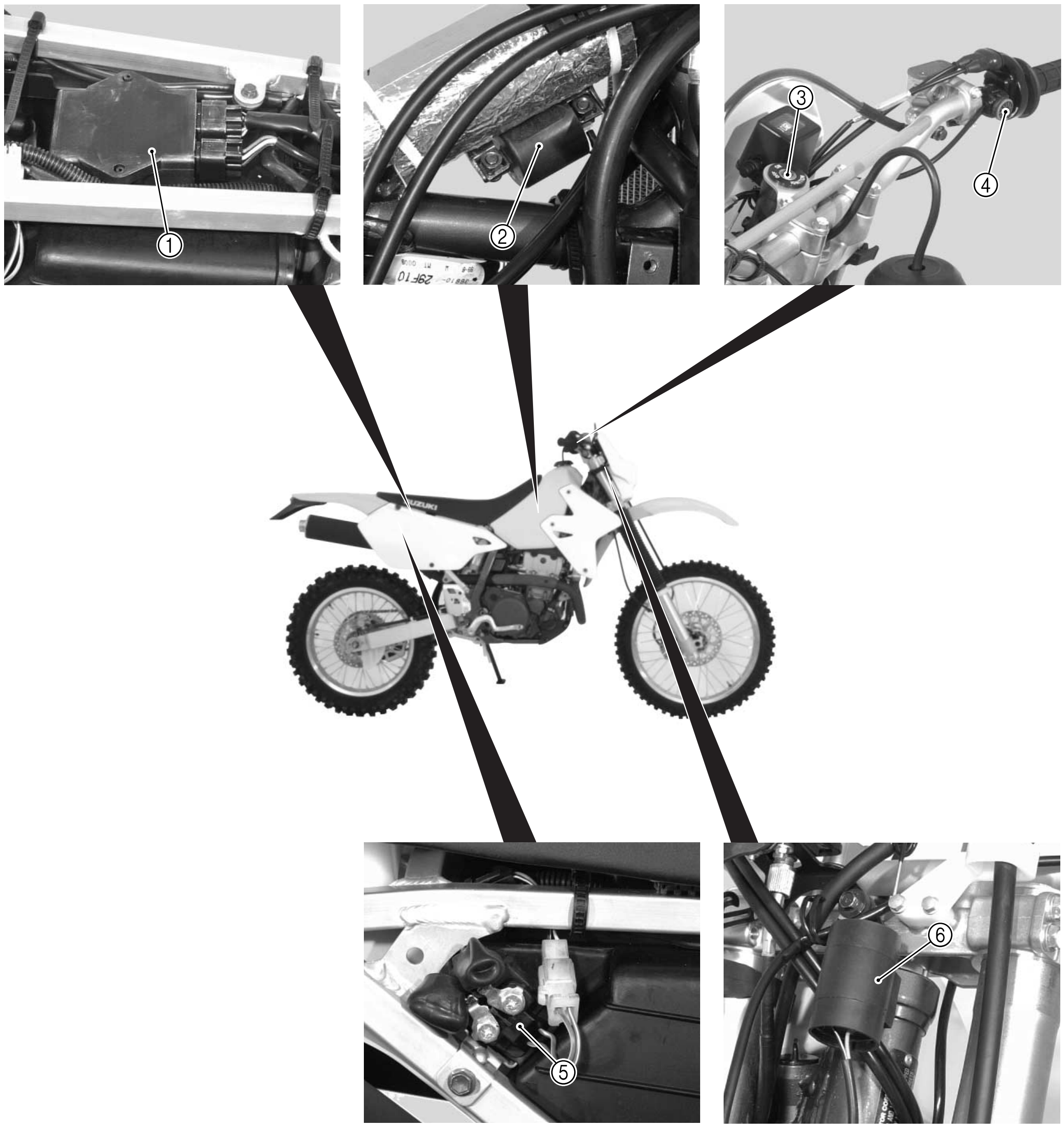


- Properly use the multi circuit tester ⊕ and ⊖ probes. Improper use can cause damage to the motorcycle and tester.
- If the voltage and current values are not known, begin measuring in the highest range.
- When measuring the resistance, make sure that no voltage is applied. If voltage is applied, the tester will be damaged.
- After using the tester, turn the switch to the “OFF” position.

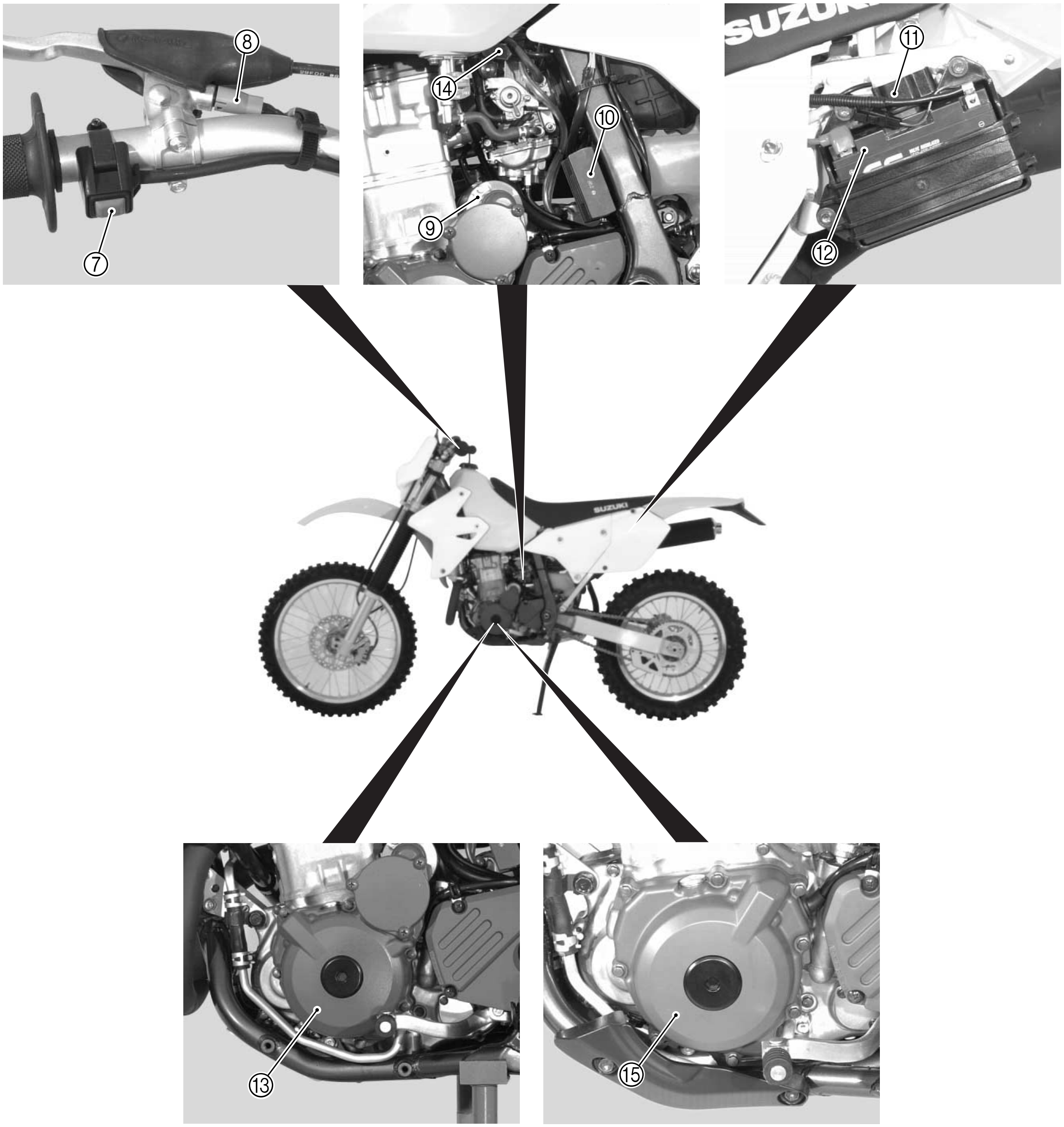
CAUTION

Before using the multi circuit tester, read its instruction manual.

LOCATION OF ELECTRICAL COMPONENTS



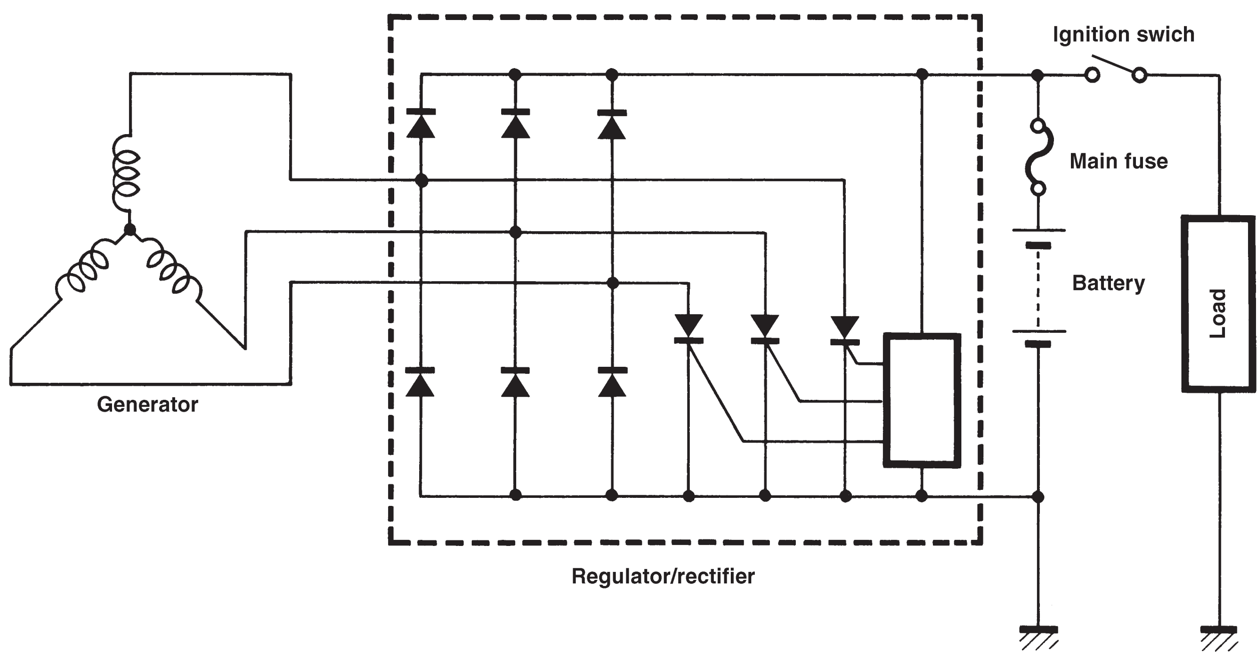
① CDI unit
② Ignition coil
③ Ignition switch (DR-Z400E)
④ Starter button (DR-Z400E)
⑤ Starter relay (DR-Z400E)
⑥ Condenser (DR-Z400)



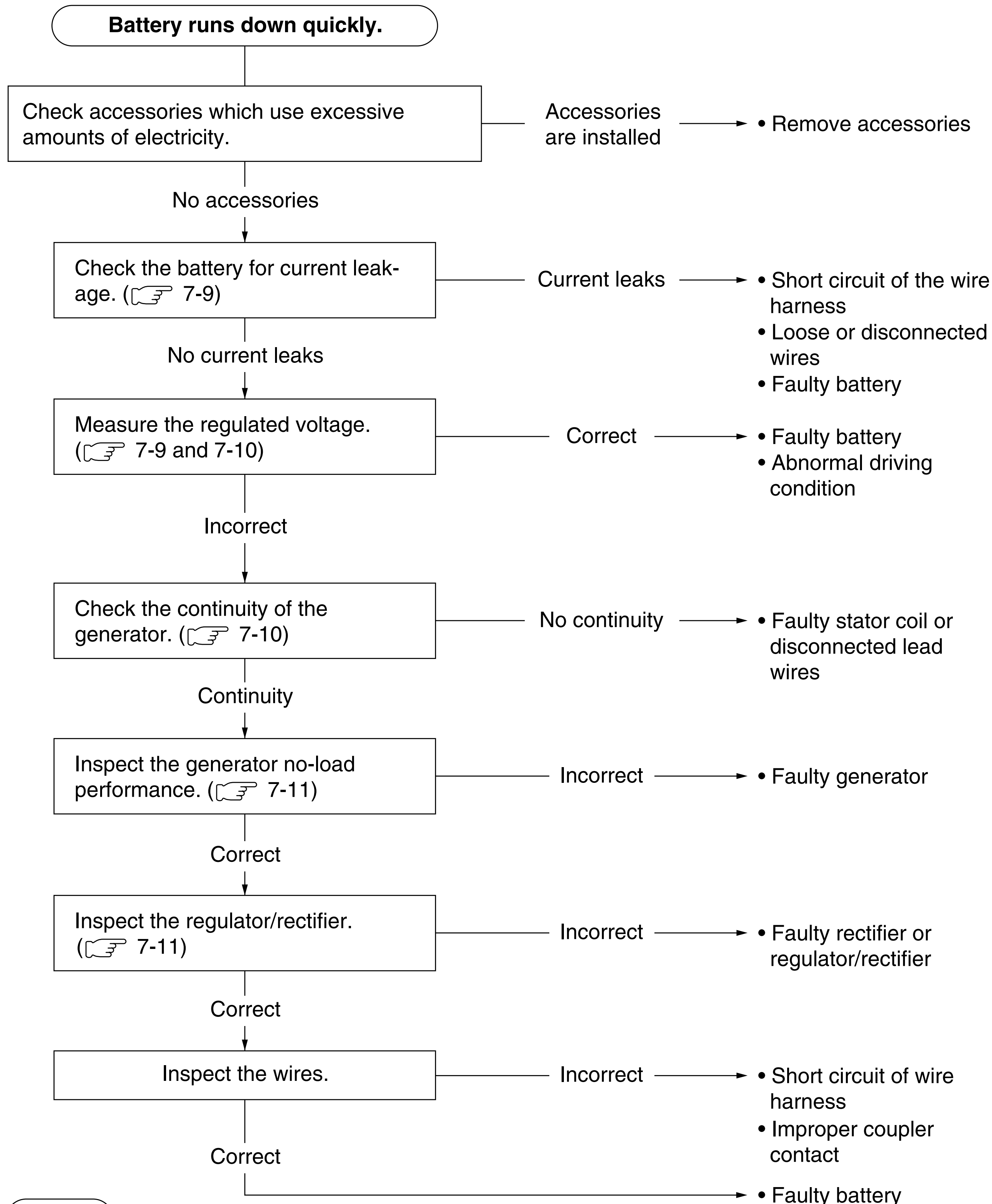
⑦ Engine stop switch
⑧ Clutch lever position switch (DR-Z400E)
⑨ Starter motor (DR-Z400E)
⑩ Regulator/rectifier
⑪ Fuse (DR-Z400E)
⑫ Battery (DR-Z400E)
⑬ Generator (DR-Z400E)
⑭ Throttle position sensor
⑮ Generator (DR-Z400)

CHARGING SYSTEM (DR-Z400E)
DESCRIPTION

The charging system consists of a generator, regulator/rectifier, and battery. The AC current, which is generated by the generator, is converted by the regulator/rectifier into DC current. The regulator/rectifier is one unit with two functions. The regulator prevents overcharging of the battery by grounding the excessive AC current. The rectifier changes the AC current, which is produced by the generator, to the DC current.
All of these components work together to maintain a correct and constant voltage and to prevent the battery from overcharging.



TROUBLESHOOTING



Others

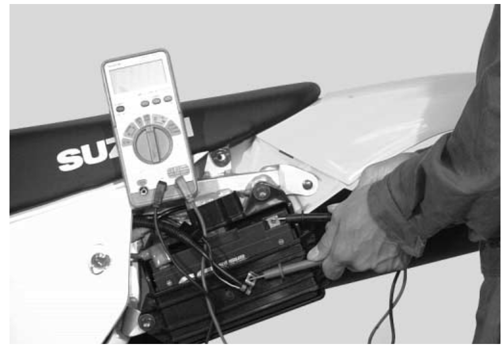
Battery overcharges	• Faulty rectifier or regulator/rectifier • Faulty battery • Poor contact of generator lead wire coupler

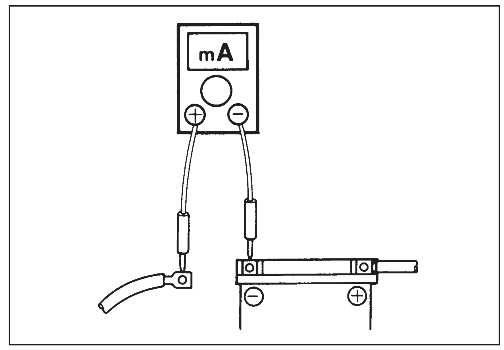
INSPECTION

BATTERY CURRENT LEAKAGE (DR-Z400E)

- Turn the ignition switch to the “OFF” position.
- Remove the battery cover. (☞ 6-2)
- Disconnect the ⊖ battery lead wire.

Measure the current between the ⊖ battery terminal and the ⊖ battery lead wire using the multi circuit tester. If the reading exceeds the specified value, leakage is evident.





TOOL **09900-25008: Multi circuit tester set**

Tester knob indication: Current (⎓ , 20mA)

DATA **Battery current (leak): Under 1mA**

⚠ CAUTION

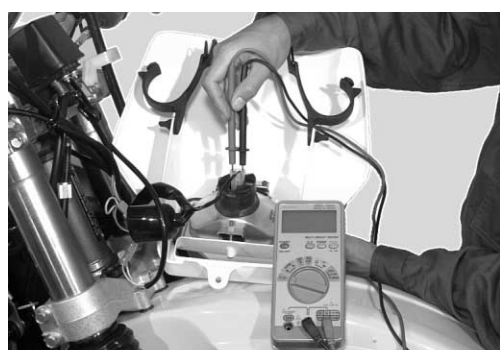
- ∗ **Because the current leak might be large, turn the multi circuit tester to the high range, first to avoid damage to the tester.**
- ∗ **Do not turn the ignition switch to the “ON” position when measuring the current.**

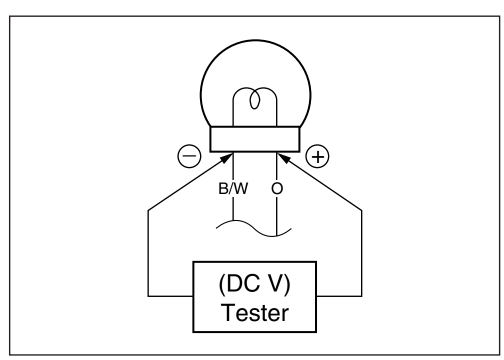
When checking to find the excessive current leakage, remove the couplers and connectors, one by one, checking each part.

REGULATED VOLTAGE (DR-Z400)

- Start the engine and run the engine at 5 000 r/min.

Measure the DC voltage between the headlight terminals using the multi circuit tester. If the tester reads without the specified value, inspect the generator and regulator/rectifier. (☞ 7-10 and 7-11)



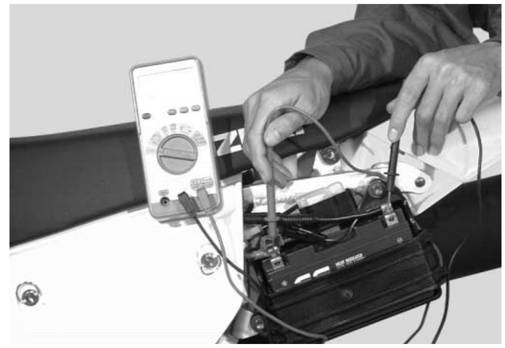


TOOL **09900-25008: Multi circuit tester set**

Tester knob indication: Voltage (⎓)

DATA **Regulated voltage**
Standard: 12.5 – 14.0 V at 5 000 r/min

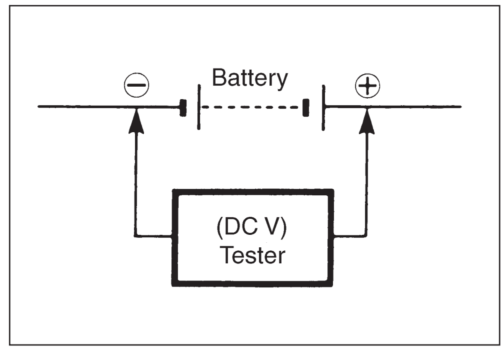
REGULATED VOLTAGE (DR-Z400E)



- Remove the battery cover. (☞ 6-2)
- Start the engine and run the engine at 5 000 r/min.

Measure the DC voltage between the ⊕ and ⊖ battery terminals using the multi circuit tester. If the voltage is not within the specified value, inspect the generator and regulator/rectifier. (☞ 7-10 and 7-11)

NOTE:
When performing this measurement, make sure that the battery is fully charged.



TOOL **09900-25008: Multi circuit tester set**

Tester knob indication: Voltage (⎓)

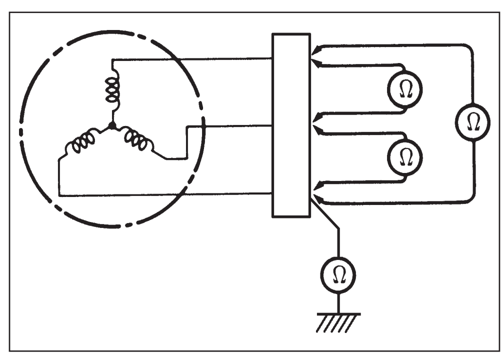
DATA **Charging output (regulated voltage)**
Standard: 13.5 – 15.0 V at 5 000 r/min

STATOR COIL RESISTANCE



- Remove the left frame cover. (☞ 6-2)
- Disconnect the stator coil lead wire coupler.

Measure the resistance between the three lead wires using the multi circuit tester. If the resistance is not within the specified value, replace the stator coil with a new one.
Also, check that the generator core is insulated.



TOOL **09900-25008: Multi circuit tester set**

Tester knob indication: Resistance (Ω)

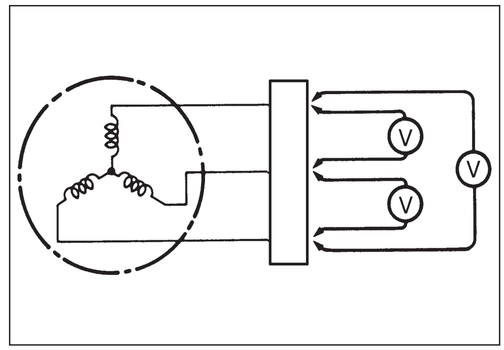
DATA **Stator coil resistance**
Standard: 0.50 – 1.25 Ω (Yellow – Yellow)
∞ Ω (Yellow – Ground)

AC GENERATOR NO-LOAD PERFORMANCE

- Remove the left frame cover. (☞ 6-2)
- Disconnect the stator coil lead wire coupler.
- Start the engine and run it at 5 000 r/min.

Measure the AC voltage between the lead wires of the generator using the multi circuit tester. If the voltage is under the specified value, replace the AC generator with a new one.





09900-25008: Multi circuit tester set

Tester knob indication: Voltage (~)

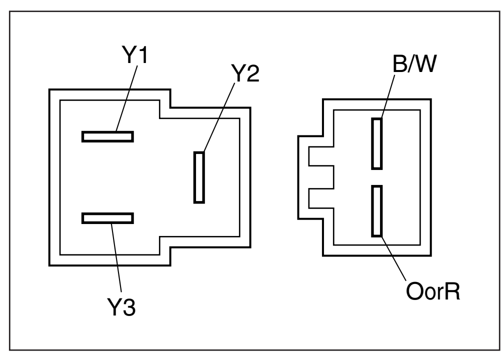
AC generator no-load performance
Standard:
More than 55 V (AC) at 5 000 r/min (DR-Z400)
More than 75 V (AC) at 5 000 r/min (DR-Z400E)

REGULATOR/RECTIFIER

- Remove the left frame cover. (☞ 6-2)
- Disconnect the regulator/rectifier coupler.

Measure the voltage between the terminals using the multi circuit tester, as indicated in the table below. If the voltage is not within the specified value, replace the regulator/rectifier with a new one.





09900-25008: Multi circuit tester set

Tester knob indication: Diode test (⊣◀—)

Unit: V

⊖ Tester probe \ ⊕ Tester probe	O or R	B/W	Y_1	Y_2	Y_3
O or R		0.5 – 1.2	0.4 – 0.7	0.4 – 0.7	0.4 – 0.7
B/W	1.4 – 1.5		1.4 – 1.5	1.4 – 1.5	1.4 – 1.5
Y_1	1.4 – 1.5	0.4 – 0.7		1.4 – 1.5	1.4 – 1.5
Y_2	1.4 – 1.5	0.4 – 0.7	1.4 – 1.5		1.4 – 1.5
Y_3	1.4 – 1.5	0.4 – 0.7	1.4 – 1.5	1.4 – 1.5	

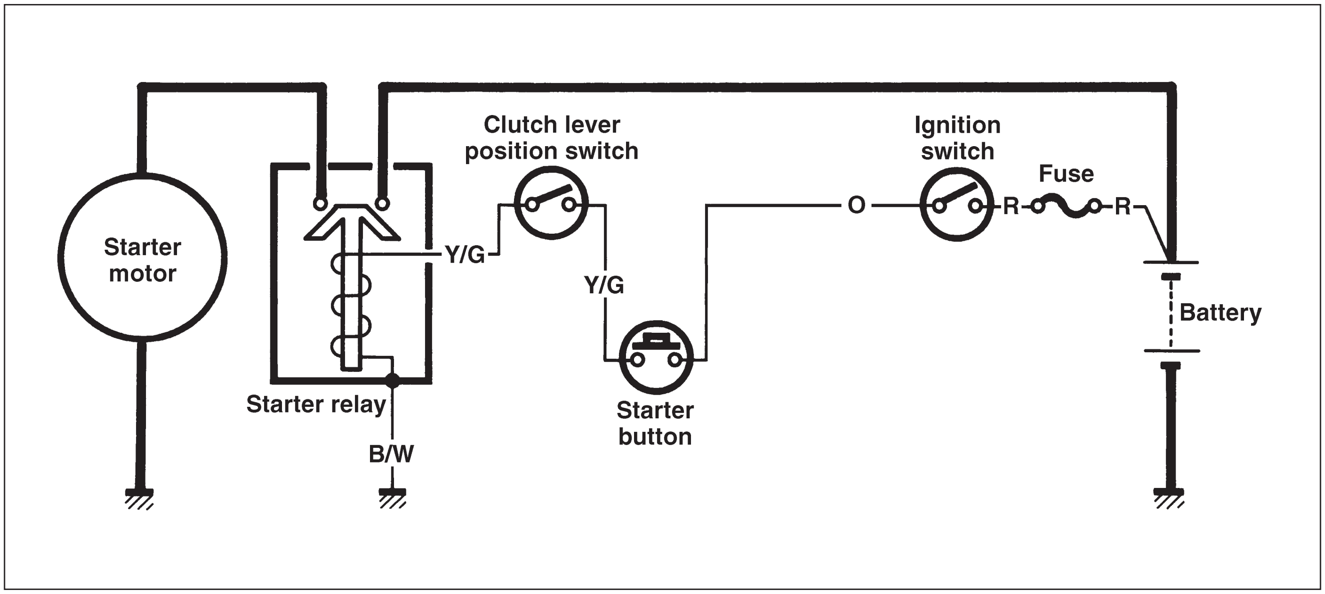
O: Orange, R: Red, Y: Yellow, B/W: Black with White tracer

NOTE:
If the tester reads under 1.4 V, disconnect the tester probes from the wire leads, and then replace the multi circuit tester's battery.

STARTER SYSTEM (DR-Z400E)

DESCRIPTION

The starter system consists of the following components: the starter motor, starter relay, clutch lever position switch, starter button, ignition switch, and battery. Pressing the starter button energizes the starter relay, causing the contact points to close, thus, completing the circuit from the starter motor to the battery. The starter motor draws about 80 amperes to start the engine.



TROUBLESHOOTING

Starter motor will not run.

The transmission is in neutral. Turn the ignition switch to the "ON" position. Grasp the clutch lever. Listen for a click from the starter relay when the starter button is pushed.

- Clicks → Check if the starter motor runs when its terminal is connected to the ⊕ battery terminal (Do not use a thin wire because a large amount of current flows.)
  - Runs →
    - Faulty starter relay
    - Loose or disconnected starter motor lead wire
  - Does not run →
    - Faulty starter motor
- No click → Continued on next page

↓

Measure the starter relay voltage at the starter relay connectors (between Y/B ⊕ and B/W ⊖) when the starter button is pushed.

No voltage →
- Faulty ignition switch
- Faulty starter button
- Faulty clutch lever position switch
- Improper connector contact
- Open circuit in wire harness

Voltage ↓

Inspect the starter relay. (☞ 7-16)

Incorrect →
- Faulty starter relay

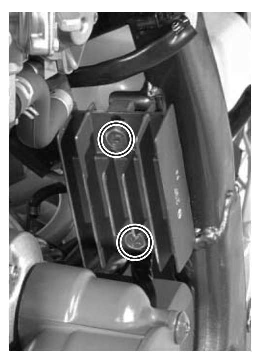
Correct →
- Improper starter relay contact

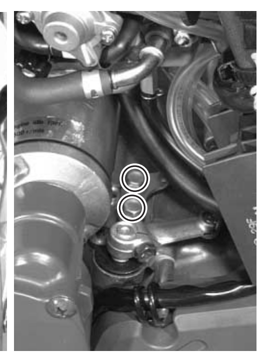
Others

Engine does not turn though the starter motor runs.	• Faulty starter clutch

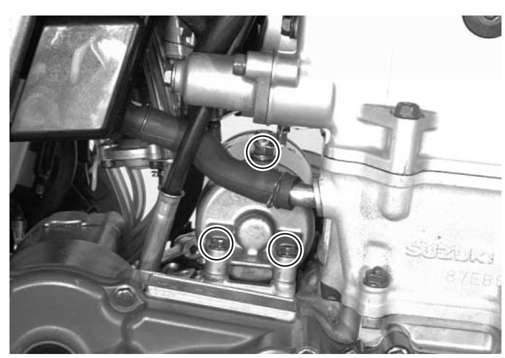
STARTER MOTOR REMOVAL AND DISASSEMBLY

- Remove the exhaust pipe. (☞ 3-5)
- Remove the regulator/rectifier mounting bolt and clutch cable guide mounting bolt.

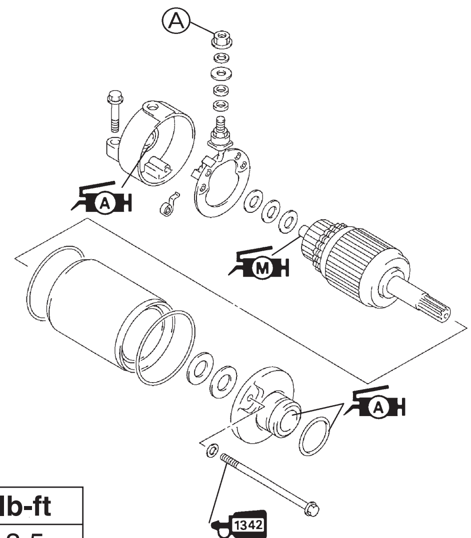




- Disconnect the starter motor lead wire.
- Remove the starter motor.



- Disassemble the starter motor, as shown.



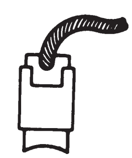
ITEM	N·m	kgf-m	lb-ft
Ⓐ	5	0.5	3.5

STARTER MOTOR INSPECTION

CARBON BRUSHES

Inspect the carbon brushes for abnormal wear, cracks, or smoothness in the brush holder.

If any damages are found, replace the brush assembly with a new one.



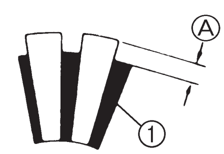
COMMUTATOR

Inspect the commutator for discoloration, abnormal wear or undercut Ⓐ.

If abnormal wear is found, replace the armature with a new one.

If the commutator surface is discolored, polish it with #400 sandpaper and wipe it using a clean, dry cloth.

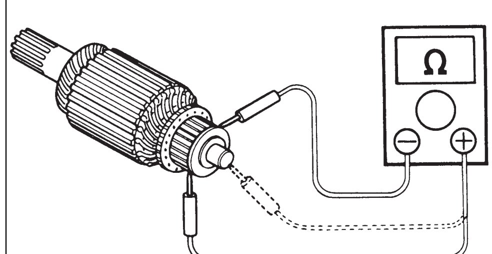
If there is no undercut, scrape out the insulator ① with a saw blade.



ARMATURE COIL INSPECTION

Check for continuity between each segment and between each segment and the armature shaft using the multi circuit tester.

If there is no continuity between the segments or there is continuity between the segments and shaft, replace the armature with a new one.



TOOL **09900-25008: Multi circuit tester set**

Tester knob indication: Continuity test (•)))

OIL SEAL

Check the seal lip for damage or leakage. If any damages are found, replace the housing end (inside) of the starter motor with a new one.



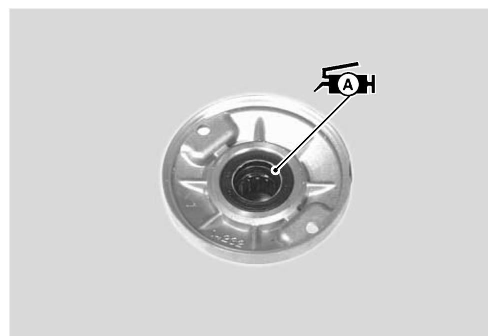
STARTER MOTOR REASSEMBLY AND REMOUNTING

Reassemble and remount the starter motor in the reverse order of removal and disassembly. Pay special attention to the following points:

CAUTION

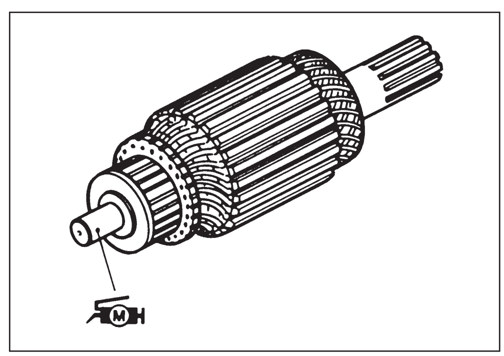
Replace the removed O-rings with new ones to prevent oil leakage and moisture.

- Apply SUZUKI SUPER GREASE “A” to the lip of the oil seal.



For USA
99000-25030: SUZUKI SUPER GREASE “A”
For the other countries
99000-25010: SUZUKI SUPER GREASE “A”

- Apply a small quantity of SUZUKI MOLY PASTE to the armature shaft.

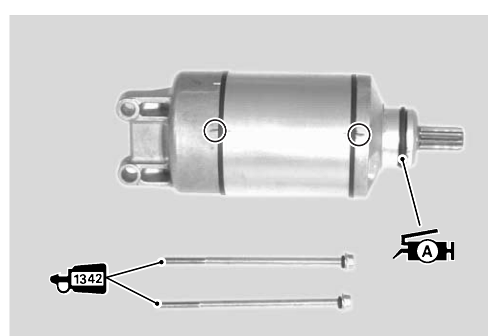


99000-25140: SUZUKI MOLY PASTE

- Align the match marks on the starter motor case with the match mark on the housing end.
- Apply a small quantity of THREAD LOCK “1342” to the starter motor housing bolts.

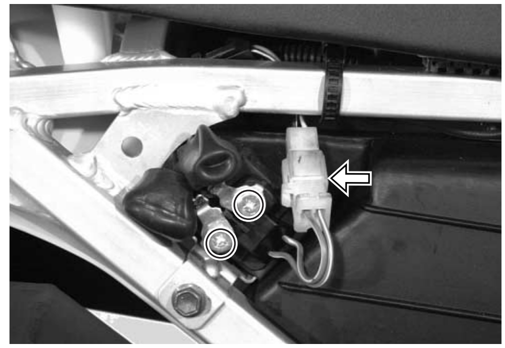
99000-32050: THREAD LOCK “1342”

- Apply SUZUKI SUPER GREASE “A” to the O-ring.

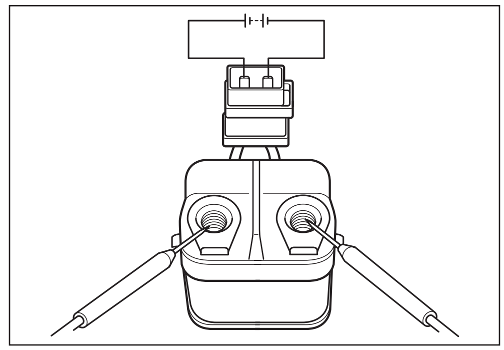


For USA
99000-25030: SUZUKI SUPER GREASE “A”
For the other countries
99000-25010: SUZUKI SUPER GREASE “A”

STARTER RELAY INSPECTION



- Remove the right frame cover. (☞ 6-3)
- Disconnect the starter motor lead wire, battery lead wire, and starter relay coupler at the starter relay.
- Remove the starter relay.



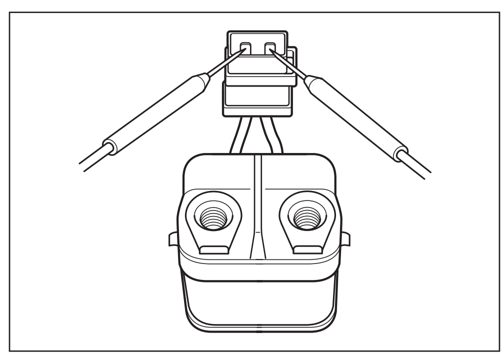
Apply 12 V to the terminals and check for continuity between the positive and negative terminals using the multi circuit tester. If the starter relay clicks and continuity is found, the relay is ok.

TOOL **09900-25008: Multi circuit tester set**

Tester knob indication: Continuity test (•)))

CAUTION

Do not apply battery voltage to the starter relay for more than five seconds, since the relay coil may overheat and be damage.



Measure the relay coil resistance between the terminals using the multi circuit tester. If the resistance is not within the specified value, replace the starter relay with a new one.

TOOL **09900-25008: Multi circuit tester set**

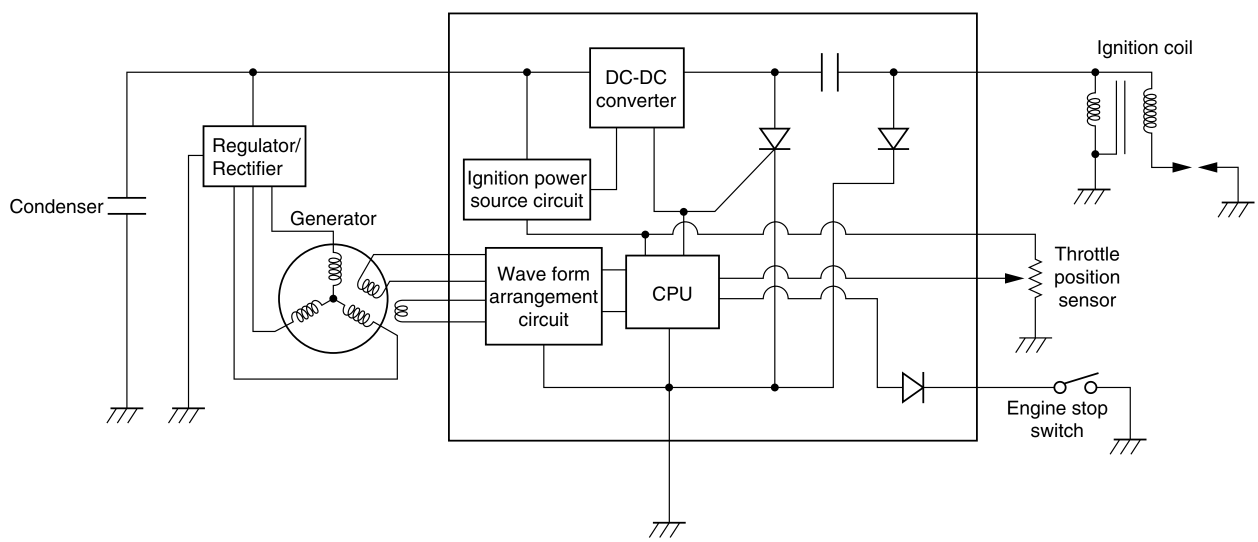
Tester knob indication: Resistance (Ω)

DATA **Starter relay resistance**
Standard: 3 – 5 Ω

IGNITION SYSTEM (DR-Z400)

DESCRIPTION

In the capacitor discharged ignition system, the electrical energy generated by the generator charges the capacitor. This energy is released in a single surge at the specified ignition timing point and the current flows through the primary side of the ignition coil. A high voltage is induced in the secondary windings of the ignition coil, resulting in a strong spark between the spark plug gap.



TROUBLESHOOTING

* Make sure the transmission is in the neutral position.

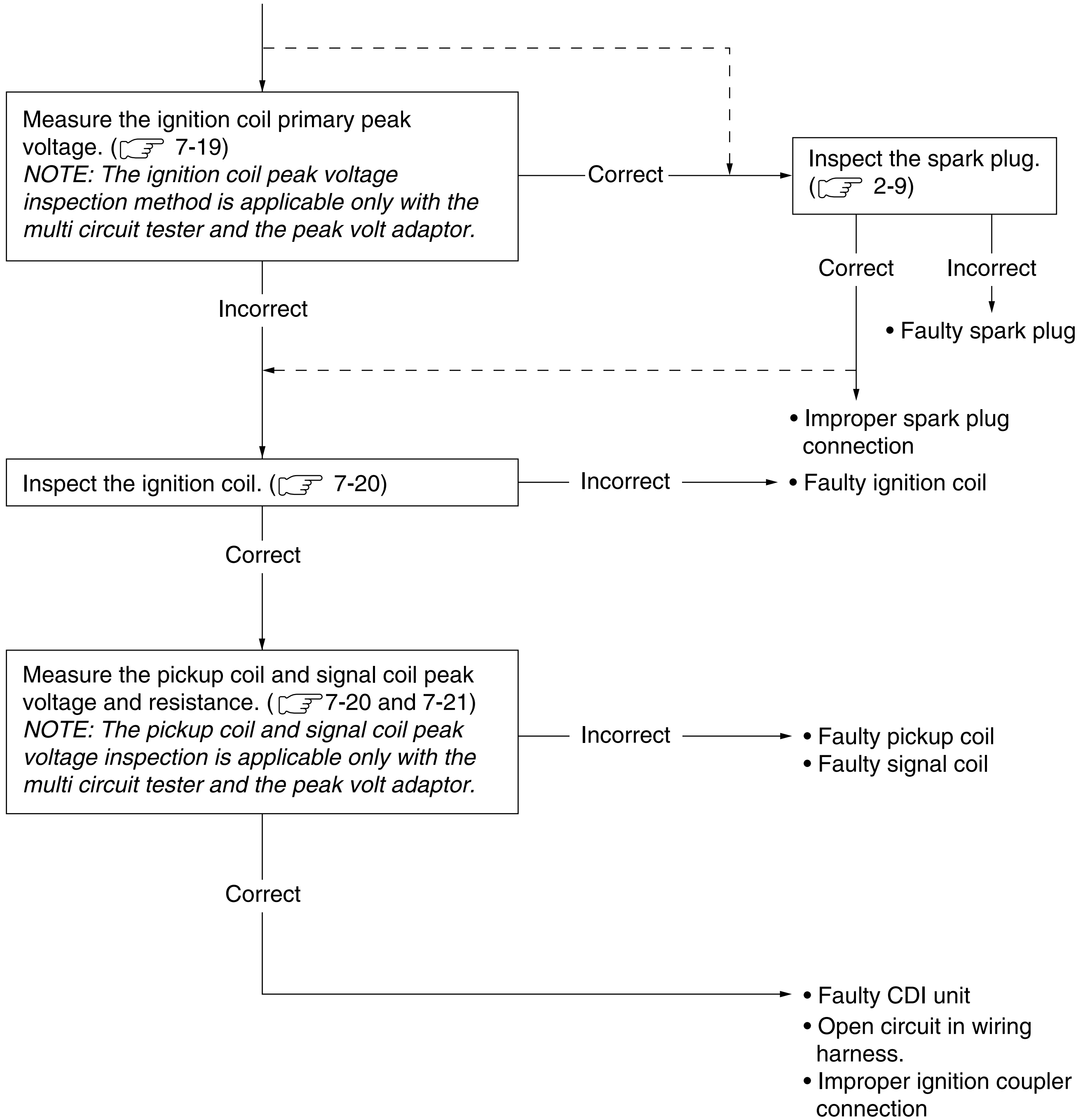
No spark or poor spark

Check the ignition system couplers for poor connections.

Loose → • Improper coupler connection

Correct ↓

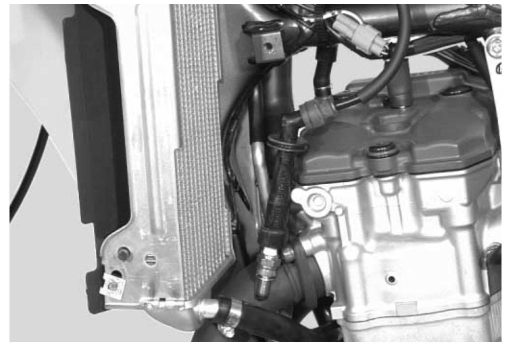
Continued on next page


Measure the ignition coil primary peak voltage. (☞ 7-19)
NOTE: The ignition coil peak voltage inspection method is applicable only with the multi circuit tester and the peak volt adaptor.
Correct
Inspect the spark plug. (☞ 2-9)
Correct
Incorrect
• Faulty spark plug
Incorrect
• Improper spark plug connection
Inspect the ignition coil. (☞ 7-20)
Incorrect
• Faulty ignition coil
Correct
Measure the pickup coil and signal coil peak voltage and resistance. (☞ 7-20 and 7-21)
NOTE: The pickup coil and signal coil peak voltage inspection is applicable only with the multi circuit tester and the peak volt adaptor.
Incorrect
• Faulty pickup coil
• Faulty signal coil
Correct
• Faulty CDI unit
• Open circuit in wiring harness.
• Improper ignition coupler connection

INSPECTION

IGNITION COIL PRIMARY PEAK VOLTAGE

- Remove the fuel tank. (☞ 4-2)
- Remove the spark plug cap and spark plug.
- Connect a new spark plug to spark plug cap and ground it to the cylinder head.



NOTE:
Make sure that the spark plug cap and spark plug are connected properly.

⚠ CAUTION

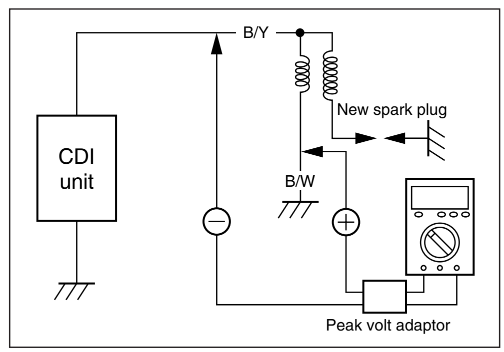
Do not let the spark plug touch the cylinder head cover, otherwise the cylinder head cover may be damaged.

Measure ignition coil primary peak voltage using the multi circuit tester in the following procedure.

- Connect the multi circuit tester with the peak voltage adaptor as follows.

Ignition coil:

Black/White terminal – Black/Yellow
(⊕ probe) (⊖ probe)



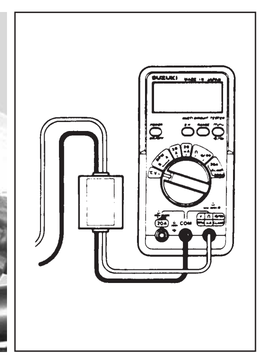
NOTE:
Do not disconnect the ignition coil primary wire.

TOOL 09900-25008: Multi circuit tester set

⚠ CAUTION

When using the multi circuit tester and peak volt adaptor, refer to the appropriate instruction manual.





- Shift the transmission into neutral and set the engine stop switch to the "RUN" position.
- Pull the decompression lever.
- Kick the kick starter lever and allow the engine to crank for a few times, and then measure the ignition coil primary peak voltage.
- Repeat the above procedure a few times and measure the highest ignition coil primary peak voltage.

NOTE:
* *Be sure to remove the spark plug, first, and then kick the kick starter lever.*
* *Kick the kick starter lever as usual.*

Tester knob indication: Voltage (⎓)

DATA Ignition coil primary peak voltage: More than 150 V

⚠ WARNING

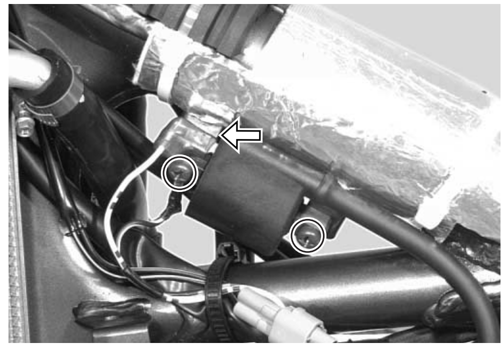
While testing, do not touch the tester probes and spark plug to prevent receiving an electric shock.

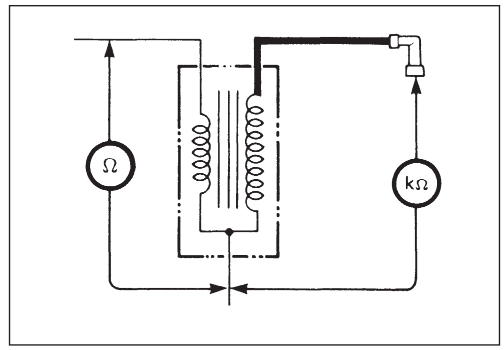
If the voltage is lower than the standard values, inspect the ignition coil. (☞ 7-20)

IGNITION COIL RESISTANCE

- Remove the fuel tank. (☞ 4-2)
- Disconnect the ignition coil lead wire, and then remove the ignition coil.

Measure the ignition coil resistance in both the primary and secondary windings using the multi circuit tester. If the resistance in both the primary and secondary windings is close to the specified values, the windings are in sound condition.





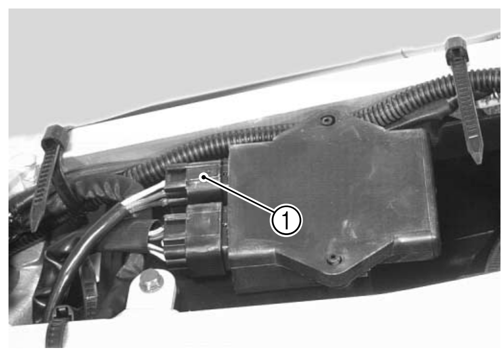
TOOL **09900-25008: Multi circuit tester set**

Tester knob indication: Resistance (Ω)

DATA **Ignition coil resistance**
Primary: 0.1 – 1.0 Ω (terminal – ground)
Secondary: 12 – 20 kΩ (terminal – spark plug cap)

PICKUP COIL AND SIGNAL COIL PEAK VOLTAGE

NOTE:
Make sure that all of the couplers are connected properly.

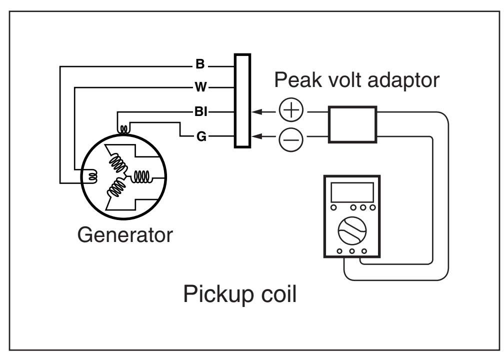


- Remove the left frame cover. (☞ 6-2)
- Disconnect the wire harness coupler ①.

Measure the pickup coil and signal coil peak voltage in the following procedure.

- Connect the multi circuit tester with the peak volt adaptor as follows.

Pickup coil: Blue (⊕ probe) – Green (⊖ probe)
Signal coil: Black (⊕ probe) – White (⊖ probe)

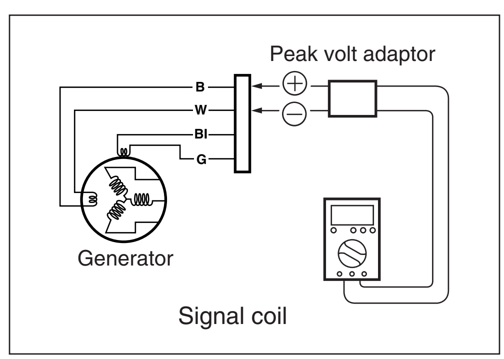


TOOL **09900-25008: Multi circuit tester set**

CAUTION

When using the multi circuit tester and peak volt adaptor, refer to the appropriate instruction manual.

- Shift the transmission into neutral.
- Kick the kick starter lever and allow the engine to turn for a few times, and then measure the pickup coil and signal coil peak voltage.
- Repeat the above procedure a few times and measure the highest pickup coil and signal coil peak voltage.

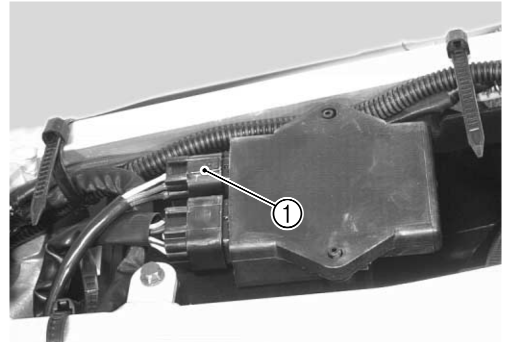


Tester knob indication: Voltage (⎓)

DATA **Pickup coil peak voltage: More than 10.0 V**
Signal coil peak voltage: More than 1.0 V

PICKUP COIL AND SIGNAL COIL RESISTANCE

- Remove the left frame cover. (☞ 6-2)
- Disconnect the generator coupler ①.



Measure the resistance between the lead wires using the multi circuit tester. If the resistance is not within the specified value, the pickup coil and signal coil must be replaced.

TOOL **09900-25008: Multi circuit tester set**

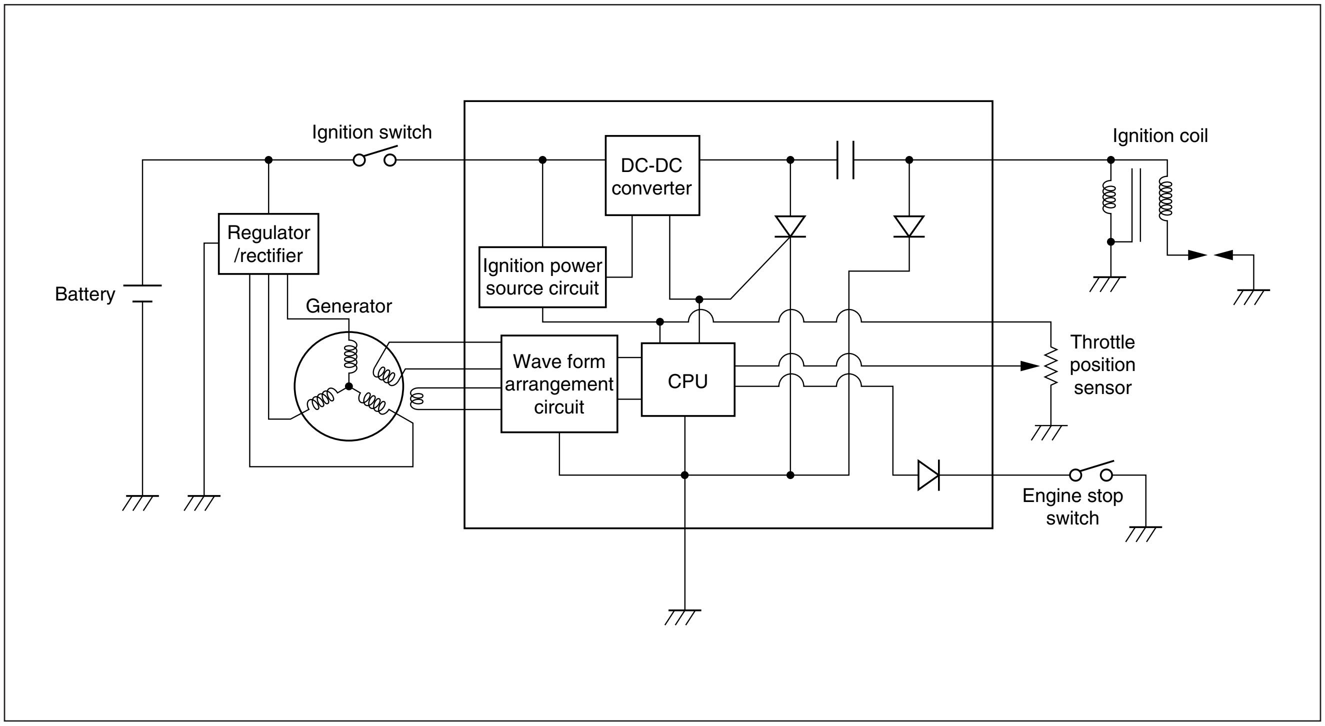
Tester knob indication: Resistance (Ω)

DATA **Pickup coil resistance: 390 – 600 Ω (Blue – Green)**
Signal coil resistance: 0.05 – 0.20 Ω (Black – White)

IGNITION SYSTEM (DR-Z400E)

DESCRIPTION

In the capacitor discharged ignition system, the battery's electrical energy charges the capacitor. This energy is released in a single surge at the specified ignition timing point and the current flows through the primary side of the ignition coil. A high voltage is induced in the secondary windings of the ignition coil, resulting in a strong spark between the spark plug gap.



TROUBLESHOOTING

No spark or poor spark

* Make sure the transmission is in the neutral position. Also, make sure the fuse is not blown and the battery is fullycharged before diagnosing.

Check the ignition system couplers for poor connections.

Loose → • Improper coupler connection

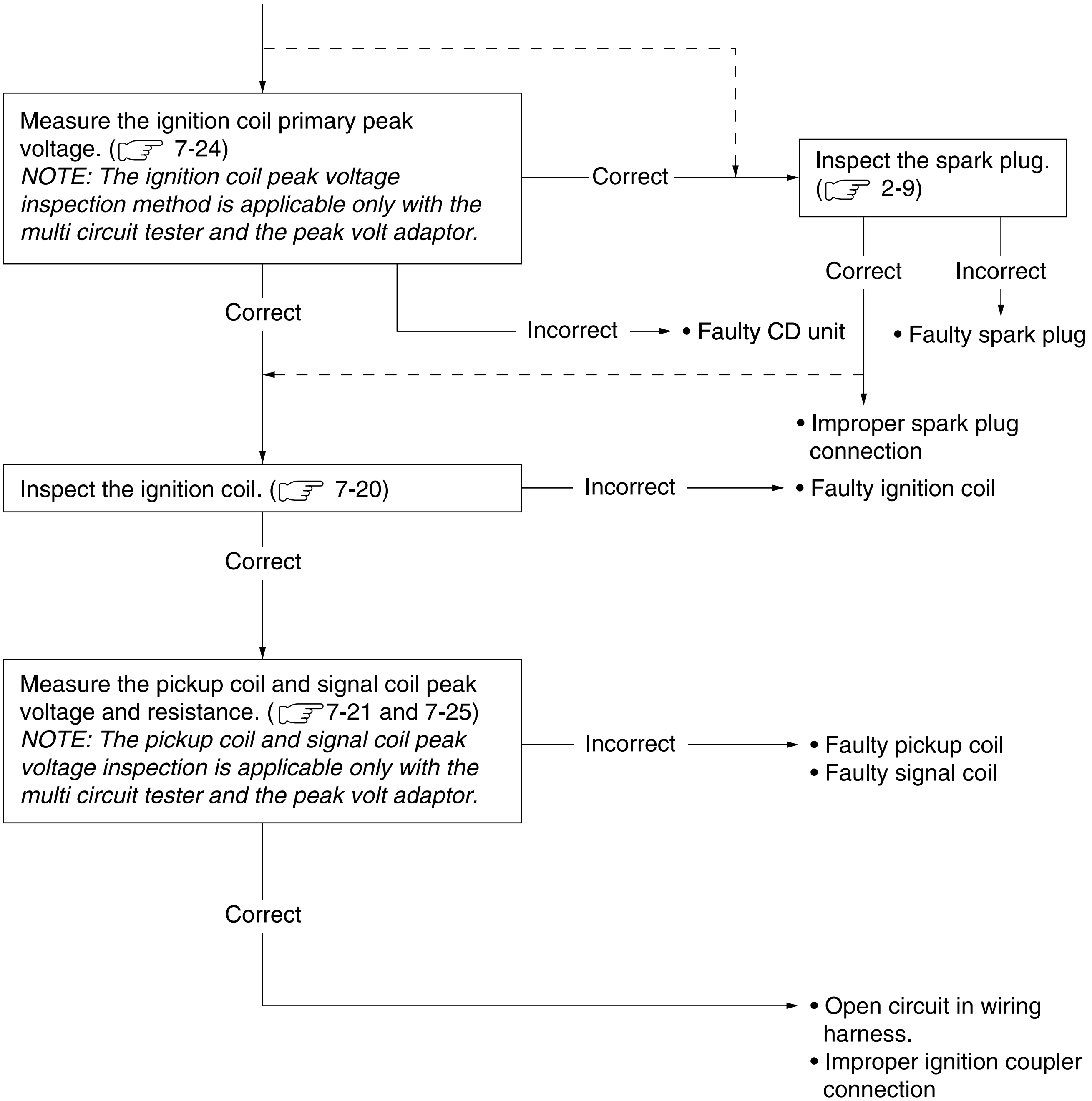
Correct ↓

Measure the battery voltage between input lead wires (O/W and B/W) at the CDI unit with the ignition switch in the "ON" position and the engine stop switch in the "RUN" position.

Incorrect →
- Faulty ignition switch
- Faulty engine stop switch
- Broken wire harness or poor connection of related circuit couplers

Correct ↓

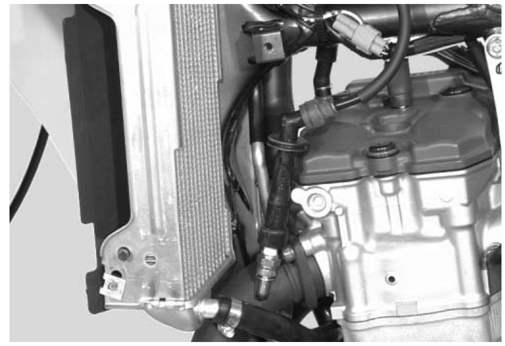
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Measure the ignition coil primary peak voltage. (☞ 7-24)
NOTE: The ignition coil peak voltage inspection method is applicable only with the multi circuit tester and the peak volt adaptor.
Correct
Inspect the spark plug. (☞ 2-9)
Correct
Incorrect
• Faulty spark plug
Correct
Incorrect
• Faulty CD unit
• Improper spark plug connection
Inspect the ignition coil. (☞ 7-20)
Incorrect
• Faulty ignition coil
Correct
Measure the pickup coil and signal coil peak voltage and resistance. (☞7-21 and 7-25)
NOTE: The pickup coil and signal coil peak voltage inspection is applicable only with the multi circuit tester and the peak volt adaptor.
Incorrect
• Faulty pickup coil
• Faulty signal coil
Correct
• Open circuit in wiring harness.
• Improper ignition coupler connection

INSPECTION

IGNITION COIL PRIMARY PEAK VOLTAGE



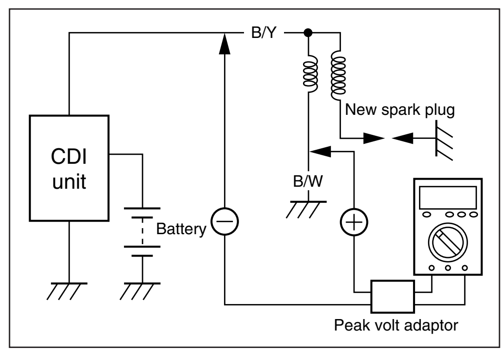
- Remove the fuel tank. (☞ 4-2)
- Remove the spark plug cap.
- Connect a new spark plug to the spark plug cap and ground it to the cylinder head.

NOTE:
Make sure that the spark plug cap and spark plug are connected properly and the battery is fully charged.

⚠ CAUTION

Do not let the spark plug touch the cylinder head cover, otherwise the cylinder head cover may be damaged.

Measure ignition coil primary peak voltage using the multi circuit tester in the following procedure.



- Connect the multi circuit tester with the peak voltage adaptor as follows.

Ignition coil:
Black/White terminal – Black/Yellow
(⊕ probe) (⊖ probe)

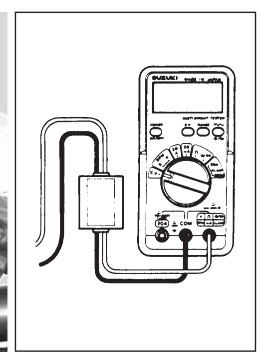
NOTE:
Do not disconnect the ignition coil primary wire.

TOOL **09900-25008: Multi circuit tester set**

⚠ CAUTION

When using the multi circuit tester and peak volt adaptor, refer to the appropriate instruction manual.





- Shift the transmission into neutral, and then turn the ignition switch to the "ON" position.
- Pull the clutch lever.
- Press the starter button and allow the engine to crank for a few seconds, and then measure the ignition coil primary peak voltage.
- Repeat the above procedure a few times and measure the highest ignition coil primary peak voltage.

Tester knob indication: Voltage (⎓)

DATA **Ignition coil primary peak voltage: More than 150 V**

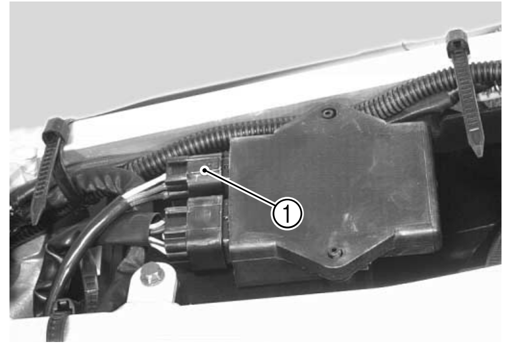
⚠ WARNING

While testing, do not touch the tester probes and spark plug to prevent receiving an electric shock.

If the voltage is lower than the standard values, inspect the ignition coil. (☞ 7-20)

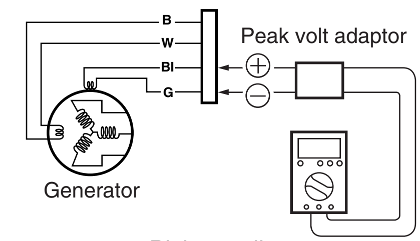
PICKUP COIL AND SIGNAL COIL PEAK VOLTAGE

NOTE:
Make sure that all of the couplers are connected properly.

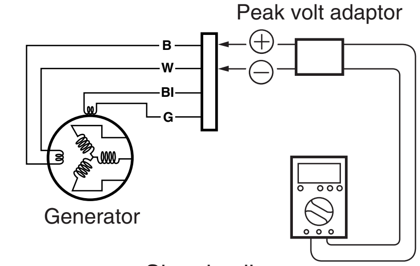


- Remove the left frame cover. (☞ 6-2)
- Disconnect the wire harness coupler ① at the CDI unit. Measure the pickup coil and signal coil peak voltage in the following procedure.
- Connect the multi circuit tester with the peak volt adaptor as follows.

Pickup coil: Blue (⊕ probe) – Green (⊖ probe)
Signal coil: Black (⊕ probe) – White (⊖ probe)



Pickup coil



Signal coil

TOOL **09900-25008: Multi circuit tester set**

⚠ CAUTION

When using the multi circuit tester and peak volt adaptor, refer to the appropriate instruction manual.

- Shift the transmission into neutral, and then turn the ignition switch to the "ON" position.
- Pull the clutch lever.
- Press the starter button and allow the engine to crank for a few seconds, and then measure the pickup coil and signal coil peak voltage.
- Repeat the above procedure a few times and measure the highest pickup coil and signal coil peak voltage.

Tester knob indication: Voltage (⎓)

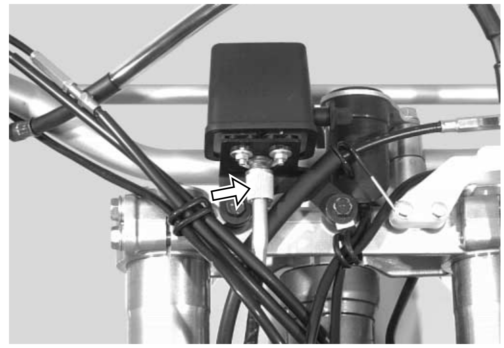
DATA **Pickup coil peak voltage: More than 5.0 V**
Signal coil peak voltage: More than 1.4 V

IGNITION COIL RESISTANCE .... ☞ 7-20
PICKUP COIL AND SIGNAL COIL RESISTANCE ... ☞ 7-21

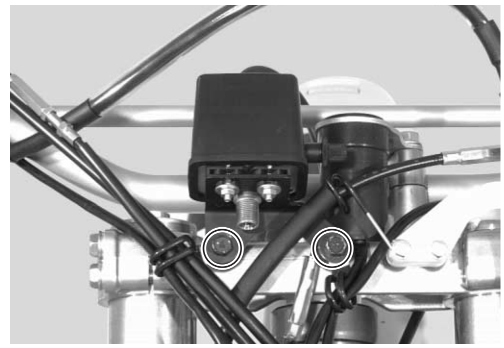
ODOMETER

REMOVAL

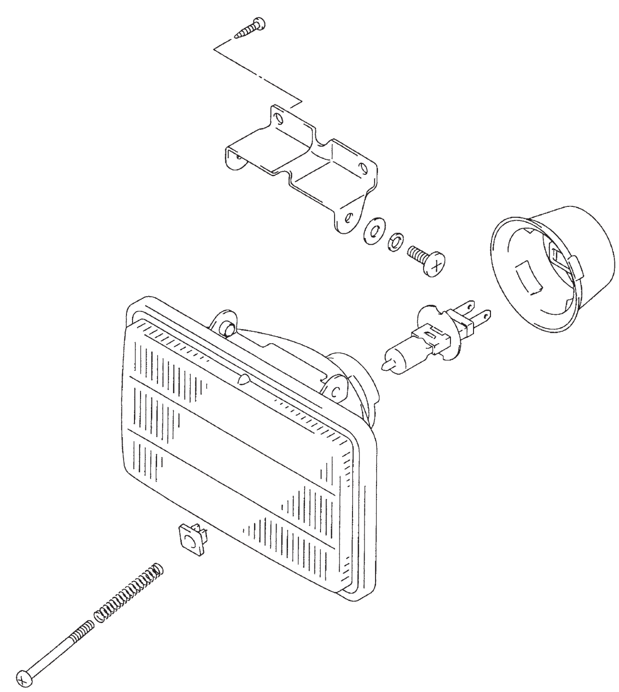
- Remove the headlight assembly. (☞ 7-27)
- Disconnect the odometer cable.



- Remove the odometer assembly.



LAMPS
HEADLIGHT



Headlight bulb : 12V 55W

BULB REPLACEMENT

- Disconnect the bands and screw.

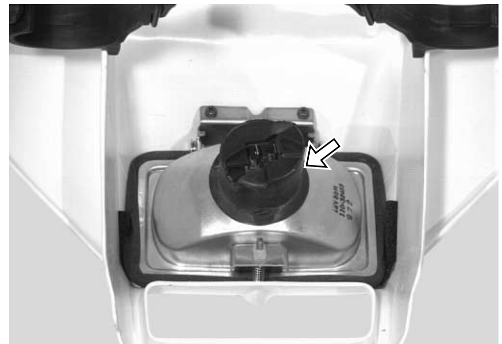




- Disconnect the headlight coupler and remove the headlight assembly.



- Remove the rubber cap.
- Remove the bulb.
- Install the new bulb in the reverse order of removal.



⚠ CAUTION

If you touch the bulb with your bare hands, clean the bulb with a cloth moistened with alcohol or soapy water to prevent premature bulb failure.

TAILLIGHT

TAILLIGHT REPLACEMENT

- Remove the seat. (☞ 6-2)
- Disconnect the taillight coupler.



- Remove the taillight assembly.



SWITCHES

Measure each switch for continuity using a multi circuit tester. If any abnormality is found, replace the respective switch assemblies with a new one.

TOOL **09900-25008: Multi circuit tester set**

IGNITION SWITCH (DR-Z400E)

Color / Position	R	O
ON	○——	——○
OFF		

ENGINE STOP SWITCH

Color / Position	B/W	B/Y
OFF	○——	——○
RUN		

STARTER BUTTON (DR-Z400E)

Color / Position	O	B/Y
•		
PUSH	○——	——○

CLUTCH SWITCH (DR-Z400E)

Color / Position	Y/G	Y/G
OFF		
ON	○——	——○

WIRE COLOR

G : Green
Gr : Gray
O : Orange
R : Red
Y : Yellow
W : White
B/W : Black with White tracer
O/W : Orange with White tracer
Y/G : Yellow with Green tracer

BATTERY (DR-Z400E)
REMOVAL

- Remove the battery cover. (☞ 6-2)
- Remove the battery holder.



- Remove the battery.

NOTE:
Disconnect the ⊖ battery lead wire, first.



SPECIFICATIONS

Type designation	GT7B-4
Capacity	12 V, 23.4 kC (6.5 Ah)/10 HR

SERVICING

Visually inspect the surface of the battery container. If any signs of cracking or electrolyte leakage from the sides of the battery have occurred, replace the battery with a new one. If the battery terminals are found to be coated with rust or an acidic white powdery substance, clean the battery terminals with sandpaper.

RECHARGING OPERATION

- Measure the battery voltage using the multi circuit tester or digital volt meter. If the voltage reading is less than the 12.6 V (DC), recharge the battery with a MF battery charger.

⚠ CAUTION

When recharging the battery, remove the battery from the motorcycle.

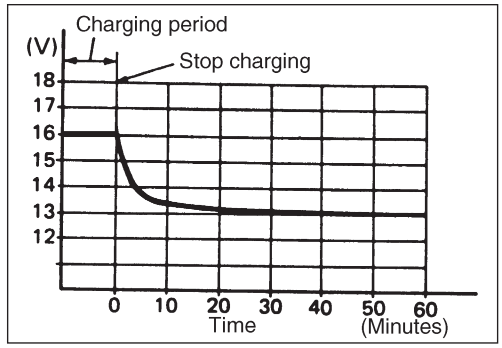
Recharging time: 0.65 A for 5 to 10 hours.

⚠ CAUTION

Do not attempt boost charging under any circumstances.

- After recharging, wait at least 30 minutes and then measure the battery voltage using the multi circuit tester. If the battery voltage is less than 12.6 V, recharge the battery again. If the battery voltage is still less than 12.6 V after recharging, replace the battery with a new one.

When a battery is left unused for a long time, its voltage needs to be regularly measured. When the motorcycle is not used for more than one month (especially during the winter season), measure the battery voltage at least once a month.



SERVICING INFORMATION

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TROUBLESHOOTING

ENGINE

Complaint	Symptom and possible causes	Remedy
Engine will not start or is hard to start.	**Compression too low**	
	1. Worn cylinder.	Replace.
	2. Worn piston ring.	Replace.
	3. Worn valve guide or improper valve seating.	Repair or replace.
	4. Loose spark plug.	Tighten.
	5. Broken, cracked, or damaged piston.	Replace.
	6. Slow cranking starter motor. (DR-Z400E)	See electrical section.
	7. Mistimed valves.	Adjust.
	8. Tappet clearance out of adjustment.	Adjust.
	Spark plug not sparking	
	1. Damaged spark plug.	Replace.
	2. Damaged spark plug cap.	Replace.
	3. Fouled spark plug.	Clean or replace.
	4. Wet spark plug.	Clean and dry or replace.
	5. Defective ignition coil.	Replace.
	6. Open or short in high-tension cord.	Replace.
	7. Defective generator.	Replace.
	8. Defective CDI unit.	Replace.
	No fuel reaching the carburetor	
	1. Clogged fuel tank vent hose.	Clean or replace.
	2. Clogged or defective fuel valve.	Clean or replace.
	3. Defective carburetor needle valve.	Replace.
	4. Clogged fuel hose.	Clean or replace.
	5. Clogged fuel filter.	Clean or replace.
Engine stalls easily.	1. Fouled spark plug.	Clean or replace.
	2. Defective generator.	Replace.
	3. Defective CDI unit.	Replace.
	4. Clogged or defective fuel valve.	Clean or replace.
	5. Clogged carburetor jet.	Clean.
	6. Tappet clearance out of adjustment.	Adjust.

Complaint	Symptom and possible causes	Remedy
Engine is noisy.	**Excessive valve chatter**	
	1. Excessive tappet clearance.	Adjust.
	2. Weak or broken valve spring.	Replace.
	3. Worn camshaft.	Replace.
	4. Worn or burnt camshaft journal.	Replace.
	Noise seems to come from the piston	
	1. Worn piston.	Replace.
	2. Worn cylinder.	Replace.
	3. Carbon buildup in combustion chamber.	Clean.
	4. Worn piston pin or piston pin bore.	Replace.
	5. Worn piston ring or ring groove.	Replace.
	Noise seems to come from the cam chain	
	1. Stretched cam chain.	Replace cam chain and sprockets.
	2. Worn cam chain sprocket.	Replace cam chain and sprockets.
	3. Improperly working cam chain tensioner.	Repair or replace.
	Noise seems to come from the clutch	
	1. Worn countershaft spline.	Replace countershaft.
	2. Worn clutch hub spline.	Replace clutch hub.
	3. Worn clutch plate teeth.	Replace clutch plate.
	4. Distorted clutch plate.	Replace.
	5. Weak clutch damper.	Replace primary driven gear.
	6. Weak clutch spring.	Replace.
	Noise seems to come from the crankshaft	
	1. Rattling bearing.	Replace.
	2. Worn or burnt crank pin bearing.	Replace.
	3. Worn or burnt journal bearing.	Replace.
	4. Excessive thrust clearance.	Replace thrust bearing.
	Noise seems to come from the transmission	
	1. Worn or rubbing gear.	Replace.
	2. Worn countershaft spline.	Replace countershaft.
	3. Worn driveshaft spline.	Replace driveshaft.
	4. Worn or rubbing primary gear.	Replace.
	5. Worn bearing.	Replace.
Clutch slips.	1. Clutch cable out of adjustment.	Adjust.
	2. Weak or broken clutch spring.	Replace.
	3. Worn or distorted clutch pressure plate.	Replace.
	4. Distorted clutch plate.	Replace.
Clutch drags.	1. Clutch out of adjustment.	Adjust.
	2. Some clutch springs are weak, while others are not.	Replace.
	3. Worn or distorted clutch pressure plate.	Replace.
	4. Distorted clutch plate.	Replace.
Transmission will not shift.	1. Broken gearshift cam.	Replace.
	2. Distorted gearshift fork.	Replace.
	3. Worn gearshift pawl.	Replace.
Transmission will not shift back.	1. Broken gearshift shaft return spring.	Replace.
	2. Rubbing or stuck gearshift shaft.	Repair or replace.
	3. Worn or distorted gearshift fork.	Replace.

Complaint	Symptom and possible causes	Remedy
Transmission jumps out of gear.	1. Worn gear. 2. Worn or distorted gearshift fork. 3. Weakened gearshift stopper spring. 4. Worn gearshift pawl.	Replace. Replace. Replace. Replace.
Engine idles poorly.	1. Tappet clearance out of adjustment. 2. Improper valve seating. 3. Worn valve guide. 4. Worn camshaft. 5. Excessive spark plug gap. 6. Defective ignition coil. 7. Defective generator. 8. Defective CDI unit. 9. Incorrect float chamber fuel level. 10. Clogged carburetor jet.	Adjust. Repair or replace. Replace. Replace. Adjust or replace. Replace. Replace. Replace. Adjust float height. Clean.
Engine runs poorly in high-speed range.	1. Weak valve spring. 2. Worn camshaft. 3. Insufficient spark plug gap. 4. Mistimed valves. 5. Ignition not advanced sufficiently due to poorly working timing advance circuit. 6. Defective ignition coil. 7. Defective generator. 8. Defective CDI unit. 9. Low float chamber fuel level. 10. Dirty air cleaner element. 11. Clogged fuel hose, resulting in inadequate fuel supply to carburetor.	Replace. Replace. Regap or replace. Adjust. Replace CDI unit. Replace. Replace. Replace. Adjust float height. Clean or replace. Clean and prime.
Exhaust smoke is dirty or thick.	1. Excessive amount of engine oil. 2. Worn cylinder. 3. Worn piston ring. 4. Worn valve guide. 5. Scored or scuffed cylinder wall. 6. Worn valve stem. 7. Defective valve stem oil seal. 8. Worn oil ring side rail.	Check level and drain. Rebore or replace. Replace. Replace. Replace. Replace valve. Replace. Replace oil ring.
Engine lacks power.	1. Insufficient tappet clearance. 2. Weak valve spring. 3. Mistimed valves. 4. Worn cylinder. 5. Worn piston ring. 6. Improper valve seating. 7. Fouled spark plug. 8. Incorrect spark plug. 9. Clogged carburetor jet. 10. Incorrect float chamber fuel level. 11. Dirty air cleaner element. 12. Air leakage from intake pipe. 13. Excessive amount of engine oil.	Adjust. Replace. Adjust. Replace. Replace. Repair or replace. Clean or replace. Replace. Clean. Adjust float height. Clean or replace. Tighten or replace. Check level and drain.

Complaint	Symptom and possible causes	Remedy
Engine overheats.	1. Carbon buildup on piston crown. 2. Insufficient amount of engine oil. 3. Defective oil pump. 4. Clogged oil circuit. 5. Float chamber fuel level too low. 6. Air leakage from intake pipe. 7. Incorrect engine oil.	Clean. Check level and add. Replace. Clean. Adjust float height. Tighten or replace. Change.

CARBURETOR

Complaint	Symptom and possible causes	Remedy
Starting difficulty.	1. Clogged starter jet. 2. Clogged starter jet passage. 3. Air leaking from joint between starter body and carburetor. 4. Air leaking from carburetor joint or vacuum hose joint. 5. Improperly working starter (enricher) plunger.	Clean. Clean. Tighten, adjust, or replace gasket. Tighten or replace defective part. Adjust.
Idling or low-speed trouble.	1. Clogged or loose pilot jet. 2. Clogged or loose pilot air jet. 3. Air leaking from carburetor joint, vacuum pipe joint, or starter. 4. Clogged pilot outlet port. 5. Clogged bypass port. 6. Starter (enricher) plunger not fully closed.	Clean or tighten. Clean or tighten. Tighten or replace defective part. Clean. Clean. Adjust.
Medium or high-speed trouble.	1. Clogged main jet. 2. Clogged main air jet. 3. Clogged needle jet. 4. Improperly working throttle valve. 5. Clogged fuel filter.	Clean. Clean. Clean. Adjust. Clean or replace.
Overflow and fuel level fluctuations.	1. Worn or damaged needle valve. 2. Broken needle valve spring. 3. Improperly working float. 4. Foreign matter on the needle valve. 5. Incorrect float chamber fuel level.	Replace. Replace. Adjust or replace. Clean or replace with needle valve seat. Adjust float height.

CHASSIS

Complaint	Symptom and possible causes	Remedy
Steering is heavy.	1. Overtightened steering stem nut. 2. Broken bearing in steering stem. 3. Distorted steering stem. 4. Low tire pressure.	Adjust. Replace. Replace. Regulate.
Handlebar wobbles.	1. Loss of balance between right and left front forks. 2. Distorted front fork. 3. Distorted front axle. 4. Twisted tire.	Adjust or replace. Repair or replace. Replace. Replace.
Front wheel wobbles.	1. Distorted wheel rim. 2. Worn front wheel bearing. 3. Defective or incorrect tire. 4. Loose front axle nut. 5. Incorrect fork oil level.	Replace. Replace. Replace. Tighten. Adjust.
Front suspension too soft.	1. Weak spring. 2. Insufficient fork oil. 3. Improper suspension setting.	Replace. Check level and add. Adjust.
Front suspension too stiff.	1. Excessively viscous fork oil. 2. Excessive fork oil. 3. Improper suspension setting.	Replace. Check level and drain. Adjust.
Front suspension too noisy.	1. Insufficient fork oil. 2. Loose front suspension fastener.	Check level and add. Tighten.
Rear wheel wobbles.	1. Distorted wheel rim. 2. Worn rear wheel bearing. 3. Defective or incorrect tire. 4. Worn swingarm bearing. 5. Loose rear axle nut. 6. Loose rear suspension fastener.	Replace. Replace. Replace. Replace. Tighten. Tighten.
Rear suspension too soft.	1. Weak rear shock absorber spring. 2. Rear shock absorber leaks oil. 3. Improper suspension setting.	Replace. Replace. Adjust.
Rear suspension too stiff.	1. Improper suspension setting. 2. Bent rear shock absorber shaft. 3. Worn swingarm bearing and rear suspension related bearing.	Adjust. Replace. Replace.
Rear suspension too noisy.	1. Loose rear suspension fastener. 2. Worn swingarm bearing and rear suspension related bearing.	Tighten. Replace.

BRAKES

Complaint	Symptom and possible causes	Remedy
Brake power insufficient.	1. Leakage of brake fluid. 2. Worn brake pad. 3. Oil on brake pad surface. 4. Worn brake disc. 5. Air in hydraulic system.	Repair or replace. Replace. Clean brake disc and brake pads. Replace. Bleed.
Brake squeaks.	1. Carbon adhesion on brake pad surface. 2. Tilted brake pad. 3. Damaged wheel bearing. 4. Worn brake pad. 5. Foreign material in brake fluid. 6. Clogged return port of master cylinder. 7. Loose front or rear axle nut.	Clean surface with sandpaper. Readjust brake pad position or replace. Replace. Replace. Change brake fluid. Disassemble and clean master cylinder. Tighten.
Brake lever or pedal stroke excessive.	1. Air in hydraulic system. 2. Insufficient brake fluid. 3. Incorrect brake fluid.	Bleed. Check level and add. Bleed any air. Change.
Brake fluid leaks.	1. Loose connection joint. 2. Cracked hose. 3. Worn piston seal. 4. Worn secondary cup.	Tighten. Replace. Replace. Replace.
Brake drags.	1. Rusty part. 2. Insufficient brake lever or brake pedal pivot lubrication.	Clean and lubricate. Lubricate.

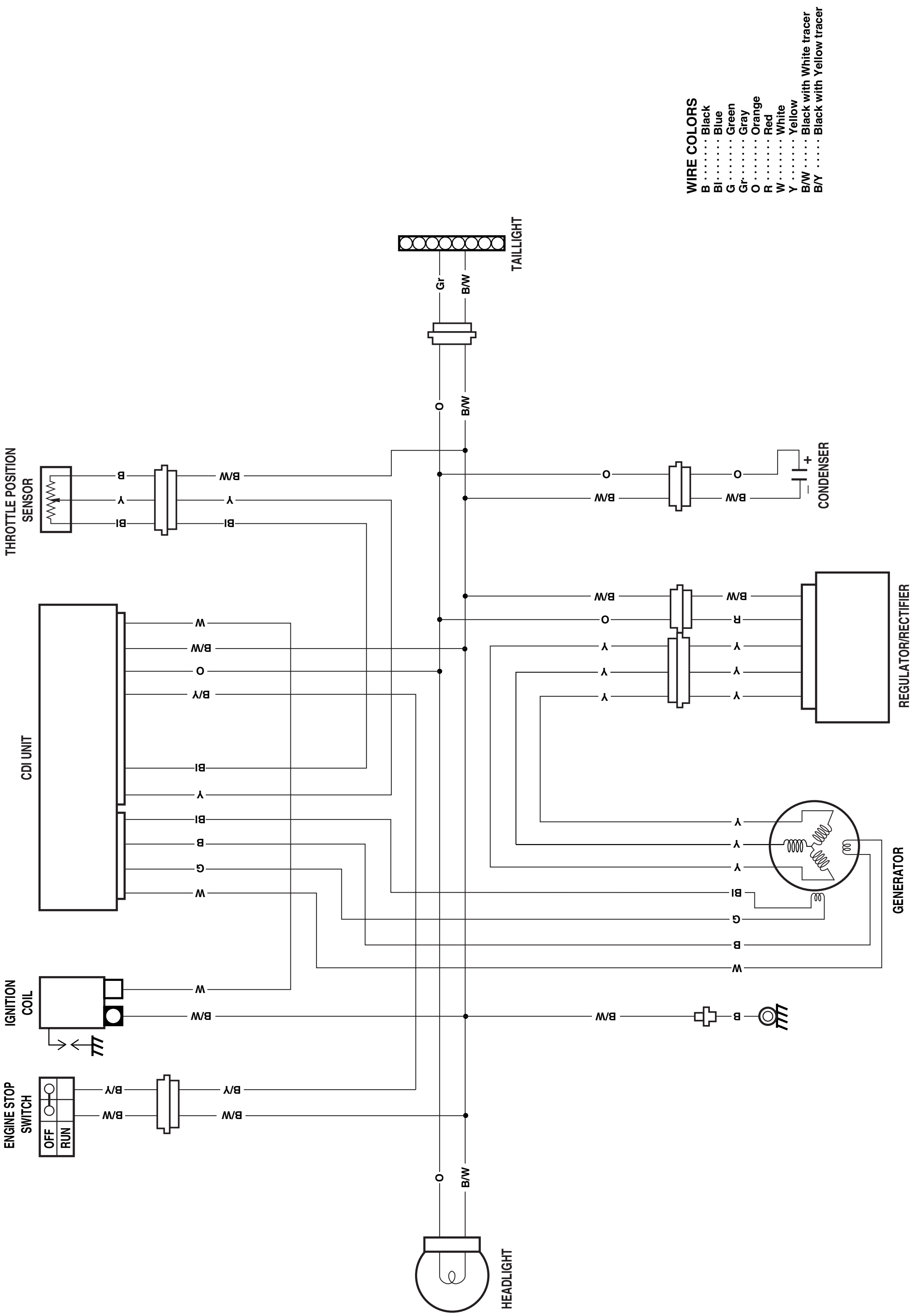
ELECTRICAL

Complaint	Symptom and possible causes	Remedy
No sparking or poor sparking.	1. Defective ignition coil. 2. Defective spark plug. 3. Defective generator. 4. Defective CDI unit.	Replace. Replace. Replace. Replace.
Spark plug is wet or quickly becomes fouled with carbon.	1. Excessively rich air/fuel mixture. 2. Excessively high idling speed. 3. Incorrect gasoline. 4. Dirty air cleaner element. 5. Incorrect spark plug (cold type).	Adjust carburetor. Adjust carburetor. Change. Clean or replace. Change to hot type spark plug.
Spark plug quickly becomes fouled with oil or carbon.	1. Worn piston ring. 2. Worn piston. 3. Worn cylinder. 4. Excessive valve-stem-to-valve-guide clearance. 5. Worn valve stem oil seal.	Replace. Replace. Replace. Replace. Replace.
Spark plug electrodes overheat or burn.	1. Incorrect spark plug (hot type). 2. Overheated engine. 3. Loose spark plug. 4. Excessively lean air/fuel mixture.	Change to cold type spark plug. Tune-up. Tighten. Adjust carburetor.
Generator does not charge.	1. Open or short in lead wires, or loose lead connections. 2. Shorted, grounded, or open generator coil. 3. Shorted or punctured regulator/rectifier.	Repair, replace, or connect properly. Replace. Replace.
Generator charges but charging rate is below the specifications.	1. Lead wires tend to get shorted or open-circuited or loosely connected at terminal. 2. Grounded or open-circuited stator coils or generator. 3. Defective regulator/rectifier. 4. Defective battery cell plates.	Repair or tighten. Replace. Replace. Replace battery.
Generator over-charges.	1. Internal short-circuit in the battery. 2. Damaged or defective regulator/rectifier. 3. Poorly grounded regulator/rectifier.	Replace battery. Replace. Repair, replace, or connect properly.
Unstable charging.	1. Lead wire insulation frayed due to vibration, resulting in intermittent shorting. 2. Internally shorted generator. 3. Defective regulator/rectifier.	Repair or replace. Replace. Replace.
Starter button does not work. (DR-Z400E)	1. Run down battery. 2. Defective switch contact. 3. Brushes do not seat properly on the commutator in the starter motor. 4. Defective starter relay. 5. Wiring connections loose or disconnected.	Recharge or replace. Replace. Repair or replace. Replace. Tighten or repair.

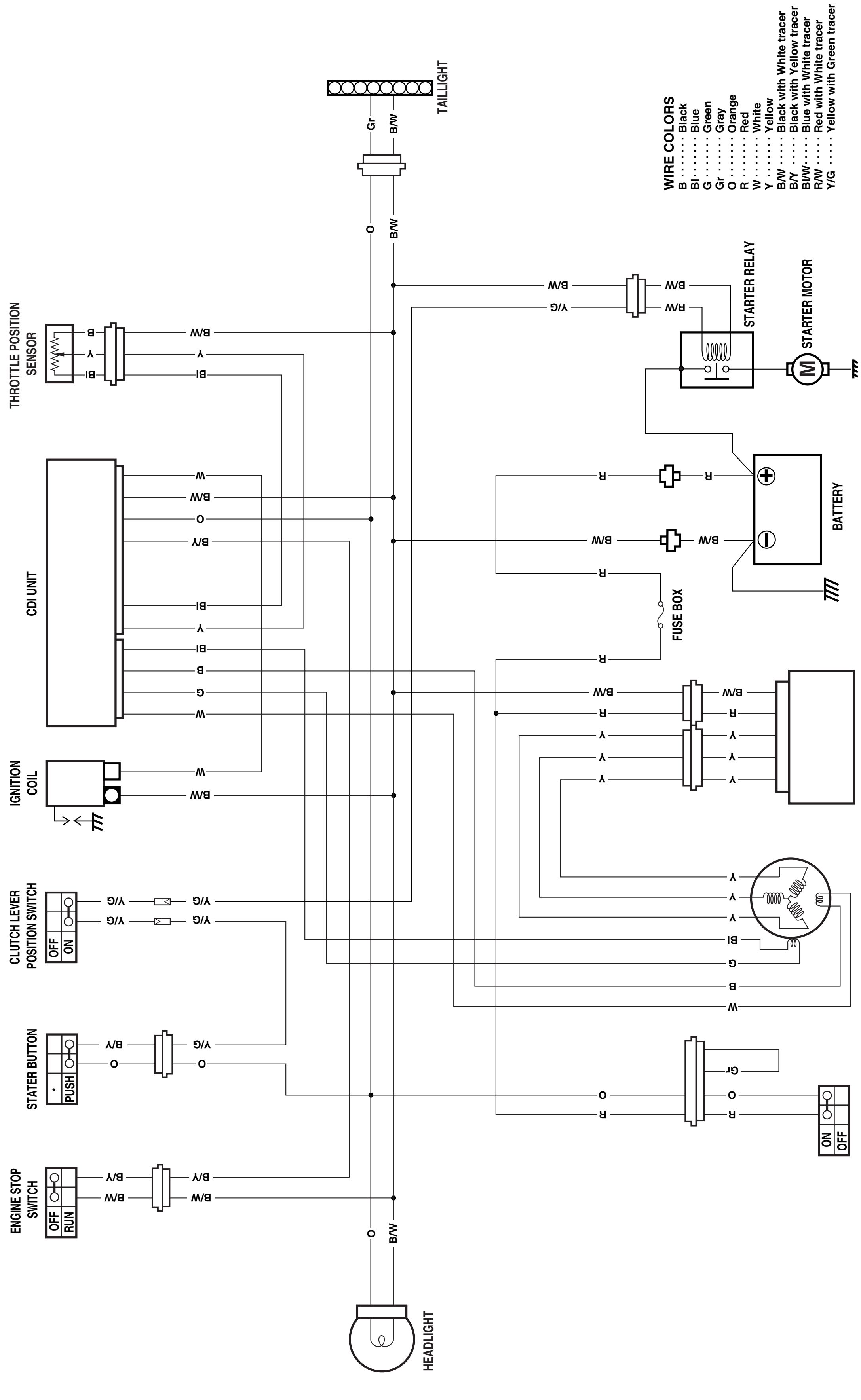
BATTERY (DR-Z400E)

Complaint	Symptom and possible causes	Remedy
Sulfation or spots on surfaces of cell plates.	1. Cracked battery case. 2. Battery has been left in a run-down condition for a long time.	Replace. Replace.
Battery runs down quickly.	1. Incorrect charging method. 2. Battery cell plates have lost much of their active material as a result of overcharging. 3. Internally shorted battery. 4. Excessively low battery voltage. 5. Battery is too old. 6. Dirty container top and sides.	Check generator, regulator/rectifier circuit connections, and make necessary adjustment to obtain specified charging operation. Replace battery and correct charging system. Replace. Charge. Replace. Clean.
Battery sulfation.	1. Incorrect charging rate. (When not in use, the battery should be checked at least once a month and properly charged if necessary, to avoid sulfation.) 2. The battery was left unused in a cold climate for too long.	Replace. Replace the battery if badly sulfated.

WIRING DIAGRAM
DR-Z400

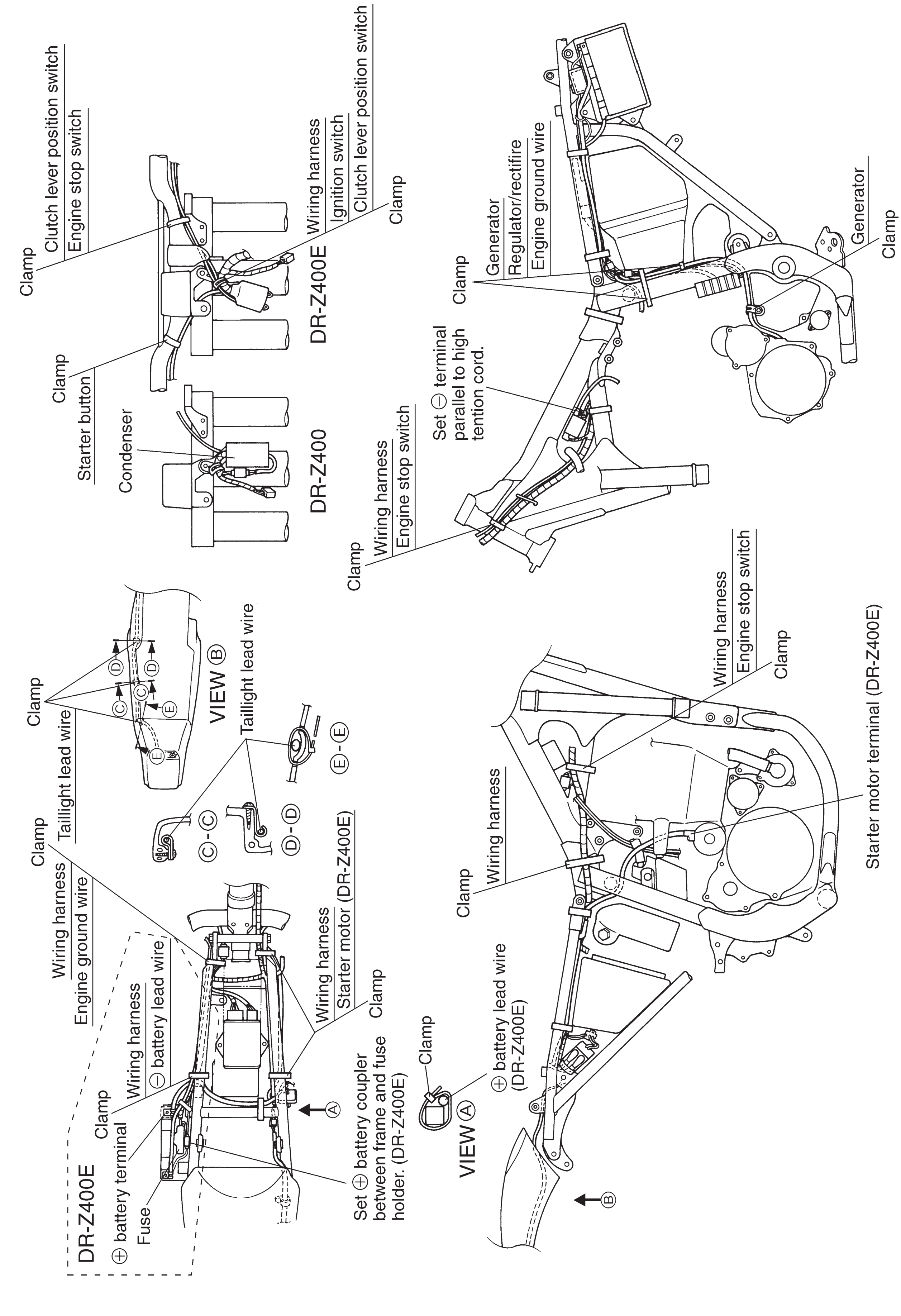


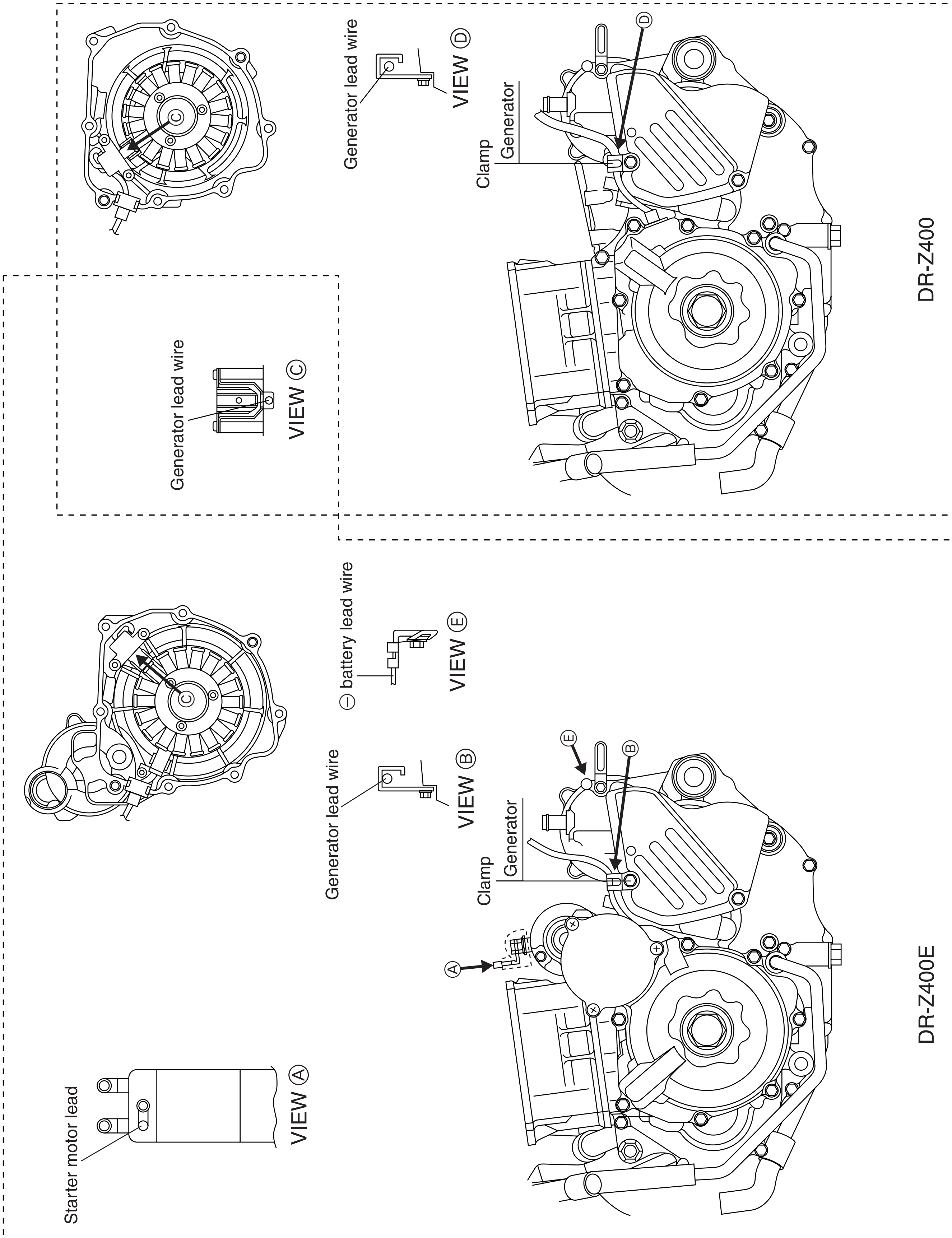
DR-Z400E


TAILLIGHT
WIRE COLORS
B ······· Black
Bl ······· Blue
G ······· Green
Gr ······· Gray
O ······· Orange
R ······· Red
W ······· White
Y ······· Yellow
B/W ····· Black with White tracer
B/Y ····· Black with Yellow tracer
Bl/W ····· Blue with White tracer
R/W ····· Red with White tracer
Y/G ····· Yellow with Green tracer
STARTER RELAY
STARTER MOTOR
THROTTLE POSITION SENSOR
CDI UNIT
BATTERY
FUSE BOX
IGNITION COIL
REGULATOR/RECTIFIER
CLUTCH LEVER POSITION SWITCH
GENERATOR
STATER BUTTON
PUSH
IGNITION SWITCH
ON
OFF
ENGINE STOP SWITCH
RUN
HEADLIGHT

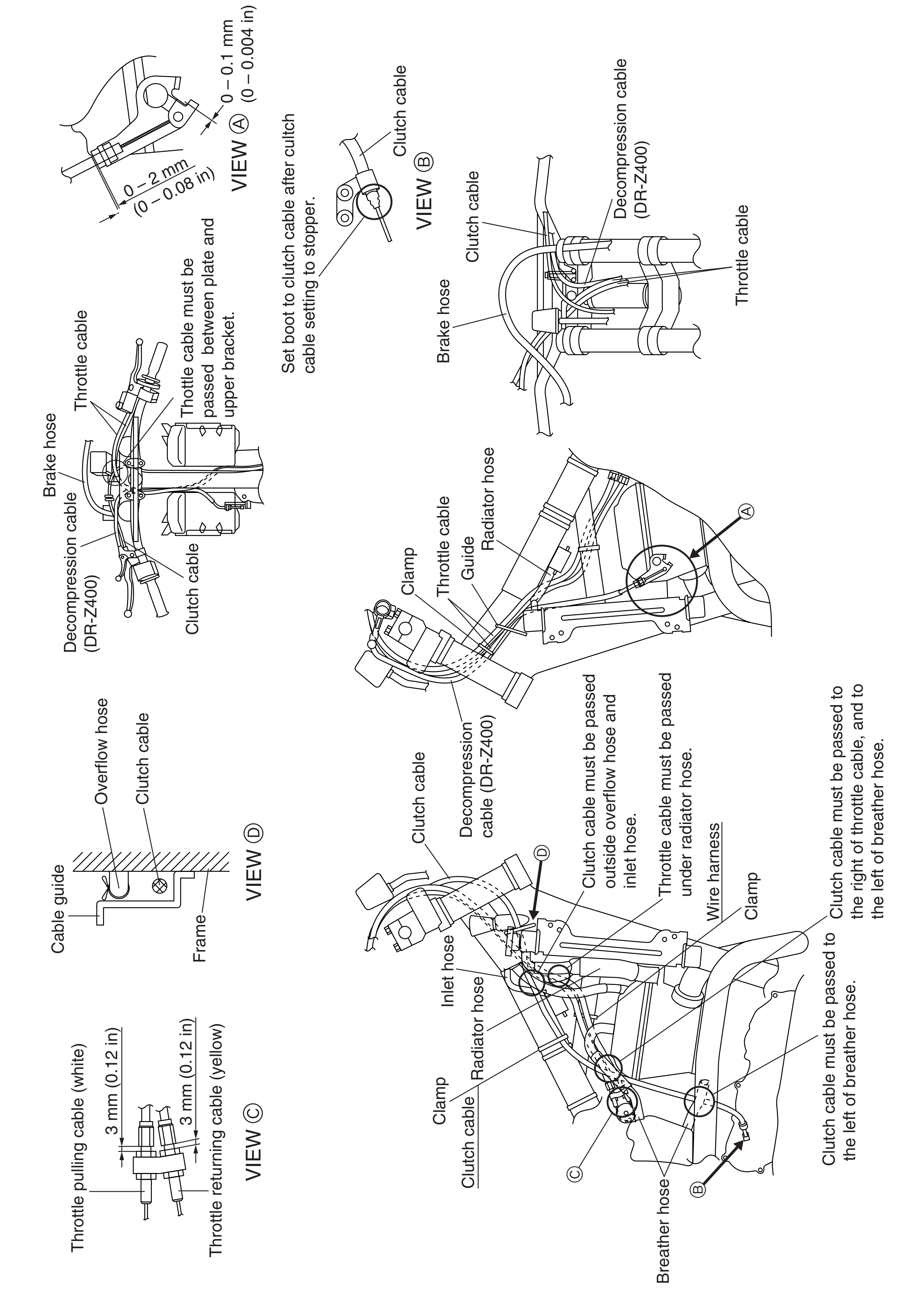
WIRE HARNESS, CABLE, AND HOSE ROUTING

WIRE ROUTING

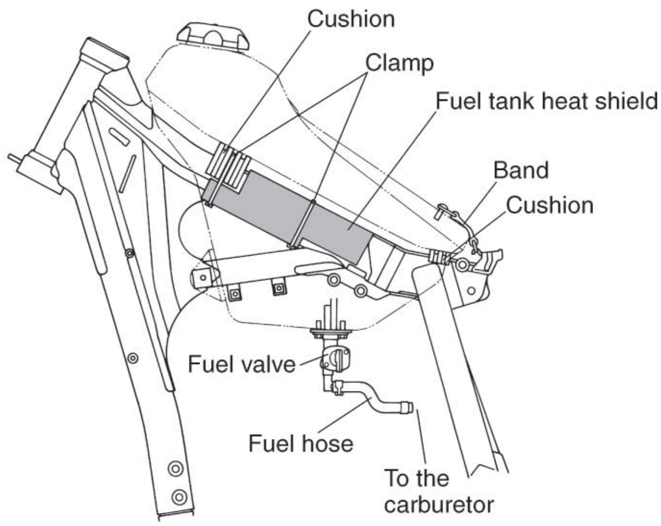



Generator lead wire
VIEW D
Clamp
Generator
DR-Z400
Generator lead wire
VIEW C
Starter motor lead
VIEW A
Generator lead wire
VIEW B
⊖ battery lead wire
VIEW E
Clamp
Generator
DR-Z400E

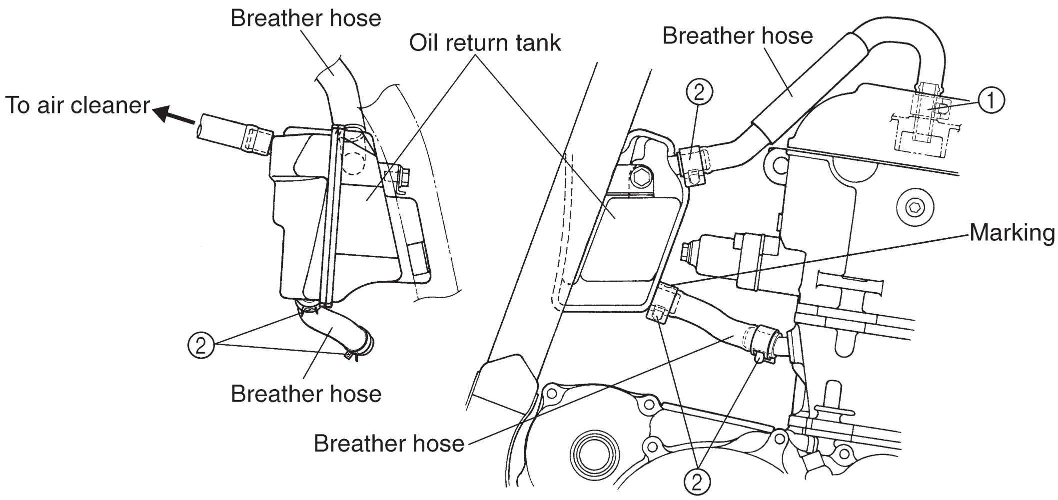
CABLE ROUTING

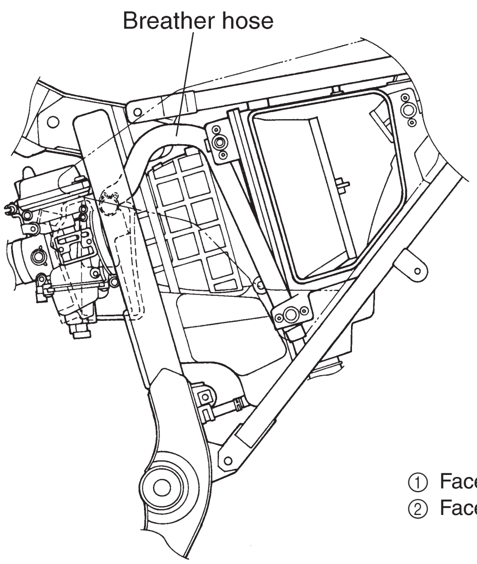


FUEL HOSE AND FUEL TANK MOUNTING



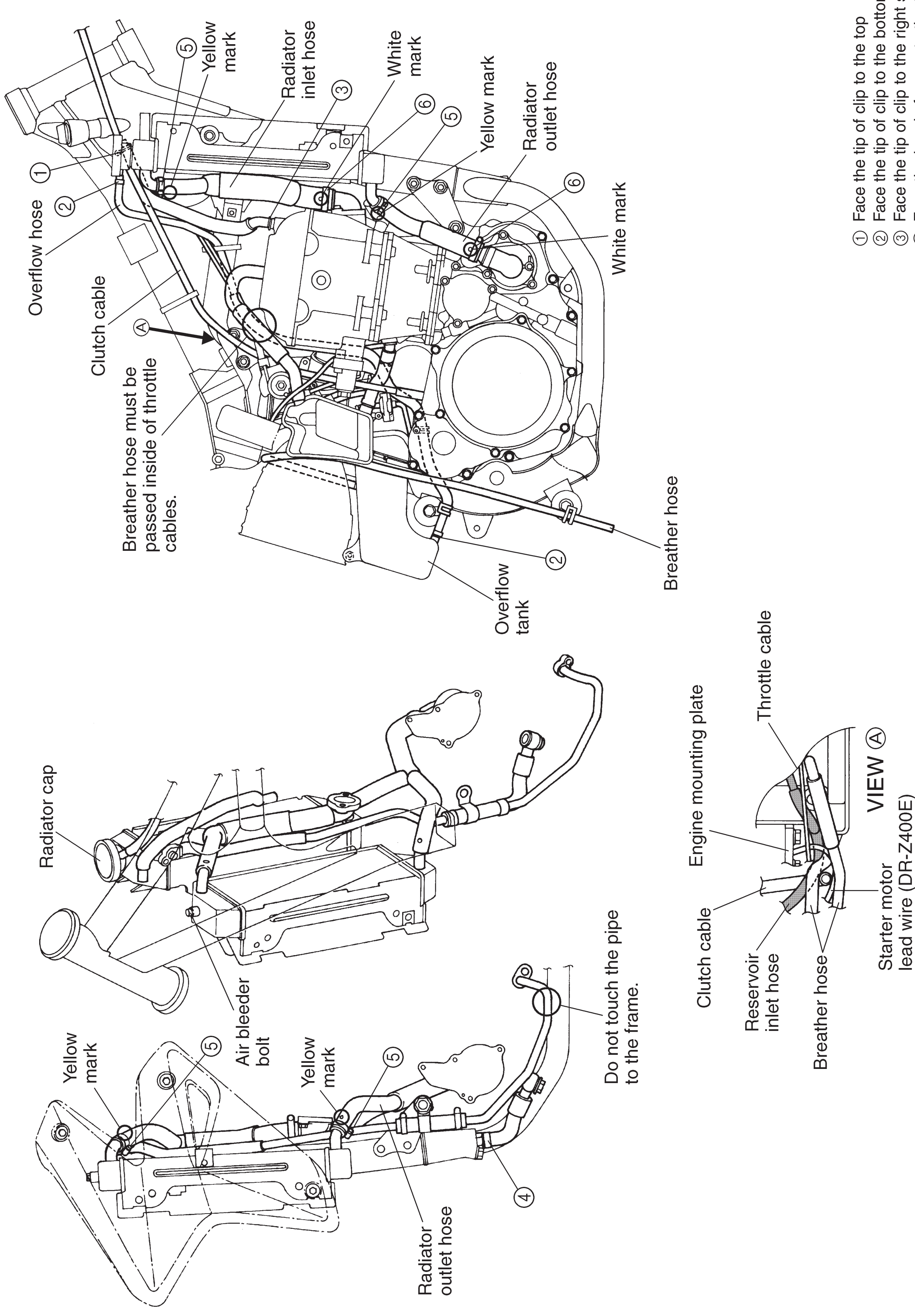
OIL RETURN TANK HOSE ROUTING





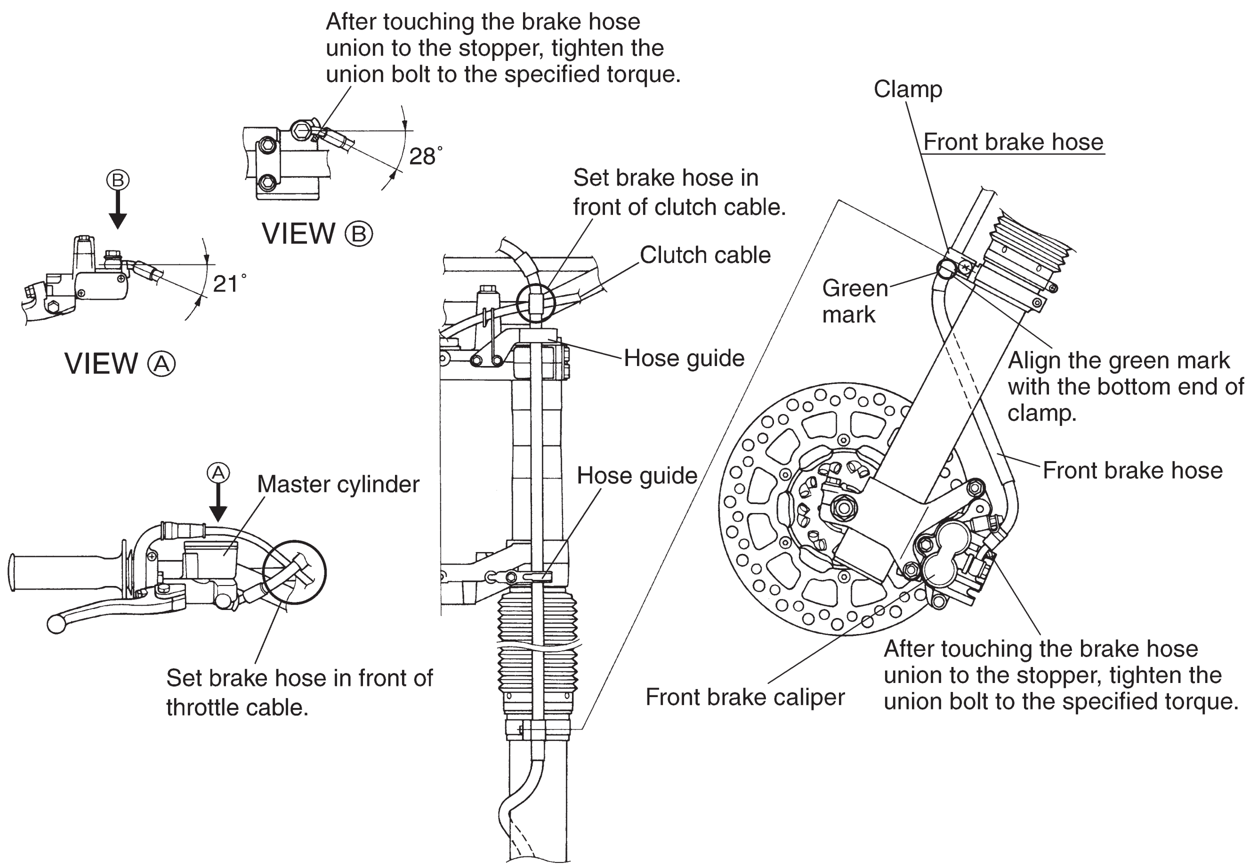
① Face the tip of clip to the front
② Face the tip of clip to the bottom

COOLING SYSTEM HOSE ROUTING

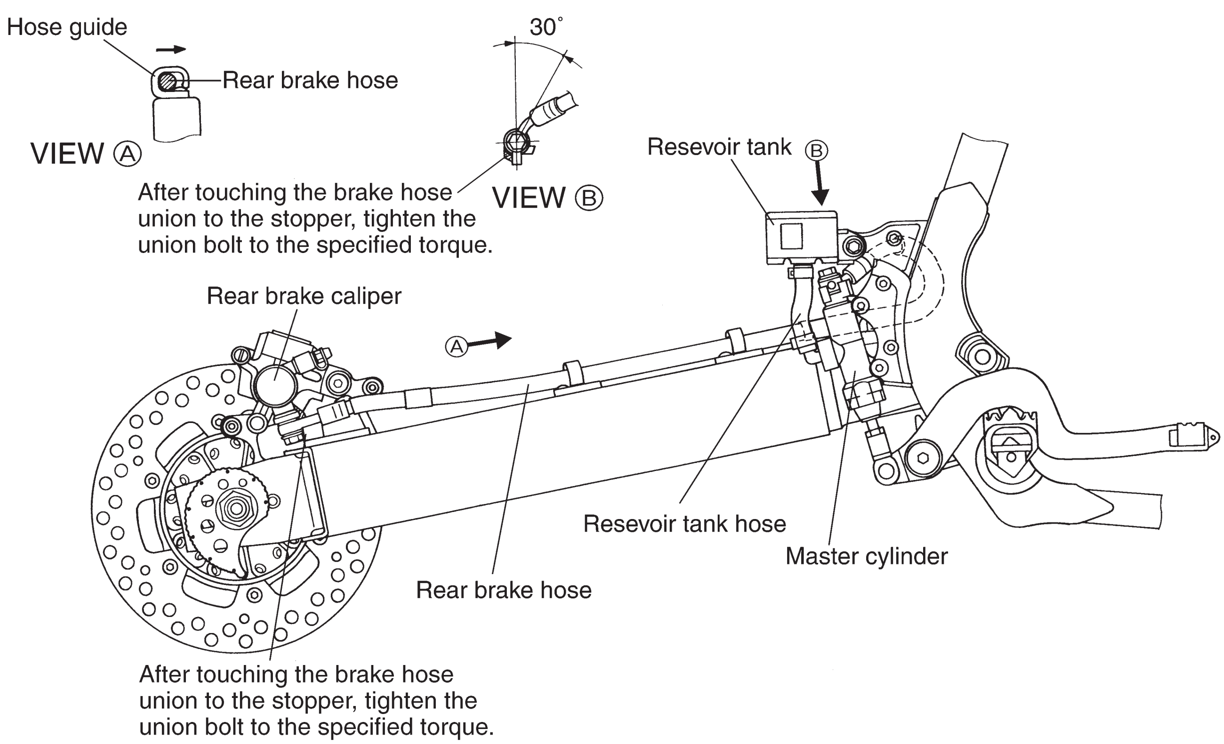


① Face the tip of clip to the top
② Face the tip of clip to the bottom
③ Face the tip of clip to the right side
④ Face the head of screw to the front side
⑤ Face the head of screw to the back side
⑥ Face the head of screw to the right side

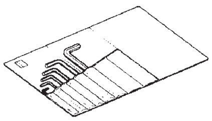
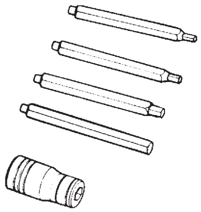
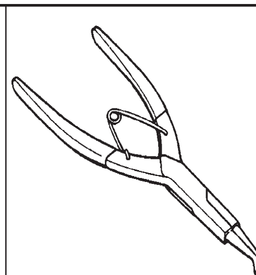
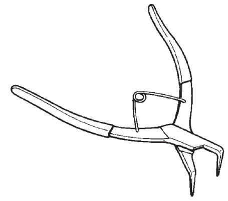
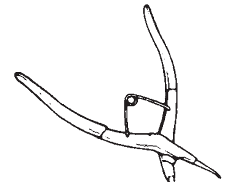
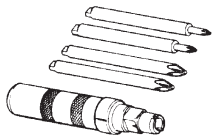
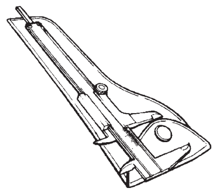
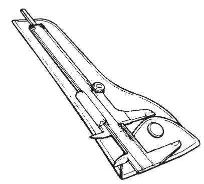
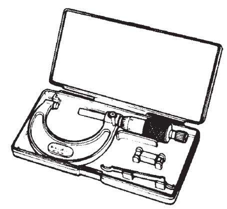
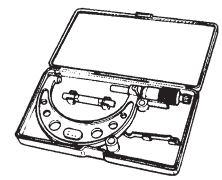
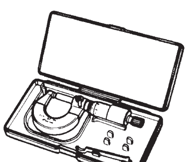
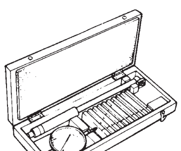
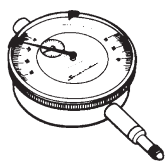
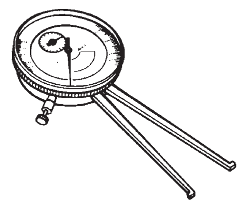
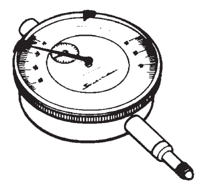
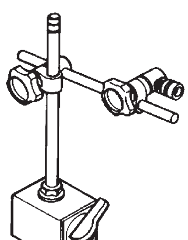
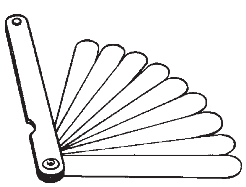
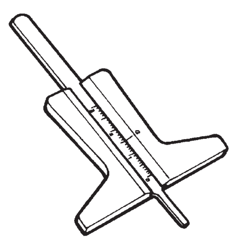
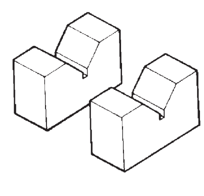
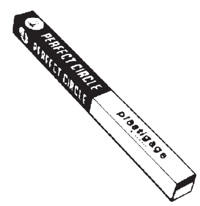
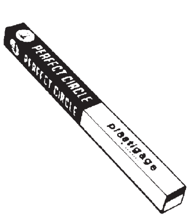
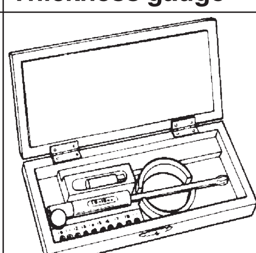
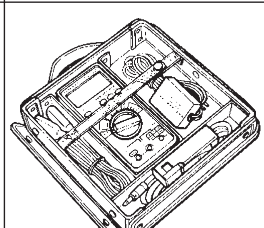
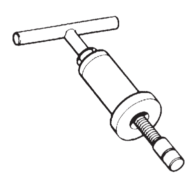
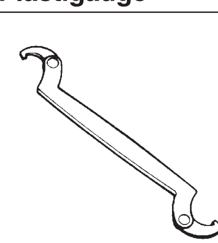
FRONT BRAKE HOSE ROUTING

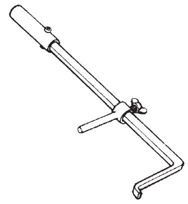
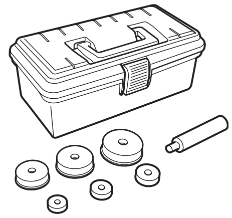
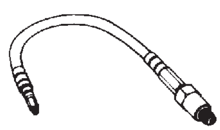
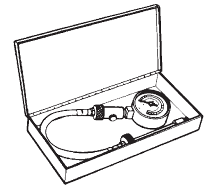
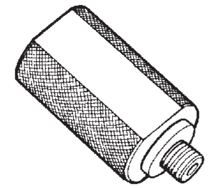
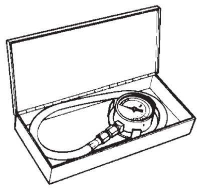
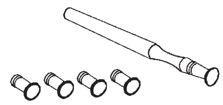
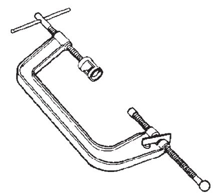
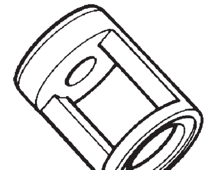
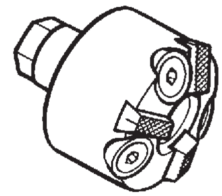
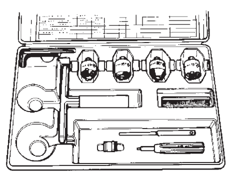
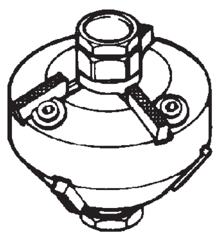
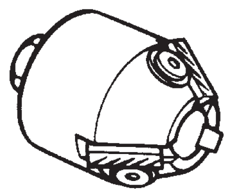
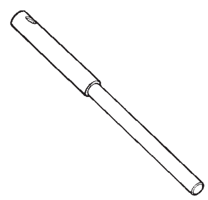
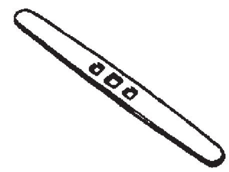
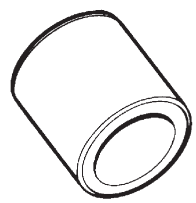
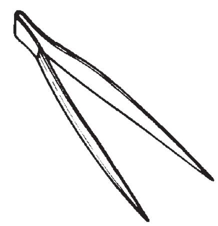
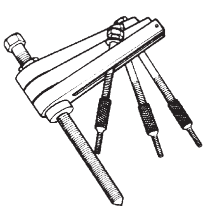
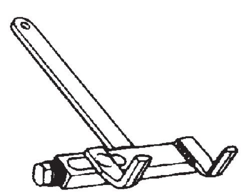
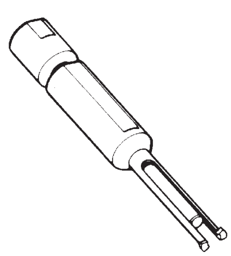
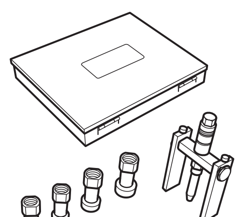
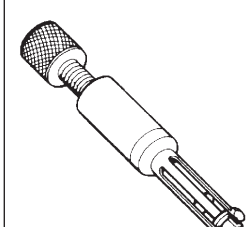


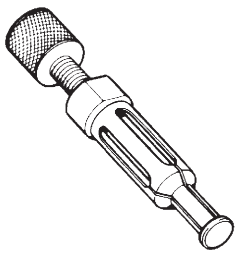
REAR BRAKE HOSE ROUTING



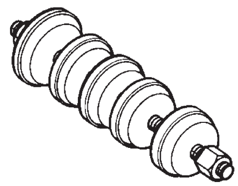
SPECIAL TOOLS

 **09900-00401** **Hexagon wrench set**	 **09900-00410** **Hexagon wrench set**	 **09900-06104** **Snap ring pliers**	 **09900-06105** **Snap ring pliers**	 **09900-06108** **Snap ring pliers**
 **09900-09004** **Impact driver set**	 **09900-20101** **Vernier calipers**	 **09900-20103** **Vernier calipers**	 **09900-20202** **Micrometer** **(25 – 50 mm)**	 **09900-20204** **Micrometer** **(75 – 100 mm)**
 **09900-20205** **Micrometer** **(0 – 25 mm)**	 **09900-20508** **Cylinder gauge set**	 **09900-20602** **Dial gauge** **(1/1000 mm)**	 **09900-20605** **Dial calipers** **(1/100 mm,** **10 – 34 mm)**	 **09900-20606** **Dial gauge** **(1/100 mm)**
 **09900-20701** **Magnetic stand**	 **09900-20803** **Thickness gauge**	 **09900-20805** **Tire depth gauge**	 **09900-21304** **V-block set** **(100 mm)**	 **09900-22301** **Plastigauge**
 **09900-22302** **Plastigauge**	 **09900-22403** **Small bore gauge** **(18 – 35 mm)**	 **09900-25008** **Multi circuit tester set**	 **09910-32812** **Crankshaft installer**	 **09910-60611** **Universal clamp wrench**

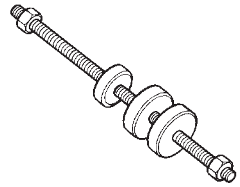
 09913-50121 Oil seal remover	 09913-70210 Bearing installer set	 09915-63310 Adapter	 09915-64510 Compression gauge set	 09915-70610 Adapter
 09915-74510 Oil pressure gauge set	 09916-10911 Valve lapper set	 09916-14510 Valve lifter	 09916-14910 Attachment	 09916-20610 Seat cutter (N-121)
 09916-21110 Valve seat Cutter set	 09916-22420 Valve seat cutter (N-128)	 09916-22430 Valve seat cutter (N-114)	 09916-24311 Solid pilot (N-100-5.0)	 09916-34542 Reamer handle
 09916-34570 Valve guide reamer (5.0 mm)	 09916-34580 Valve guide reamer (10.8 mm)	 09916-44310 Valve guide remover	 09916-53360 Valve guide in-staller attachment	 09916-84511 Tweezers
 09920-13120 Crankcase separating tool	 09920-53740 Clutch sleeve hub holder	 09921-20210 Bearing remover	 09921-20220 Bearing remover set	 09923-73210 Bearing remover



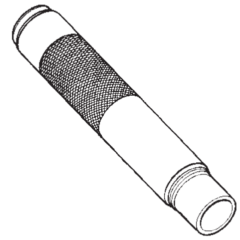
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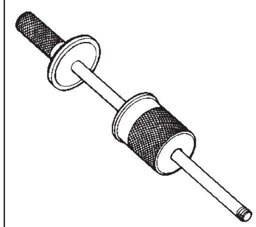
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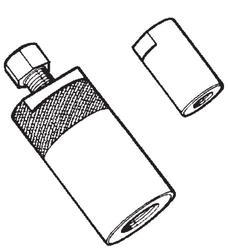
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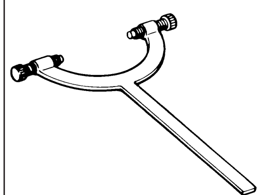
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Steering bearing installer



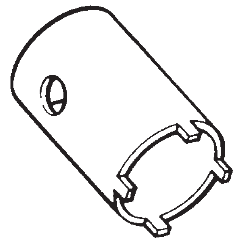
09930-30102
Sliding hammer



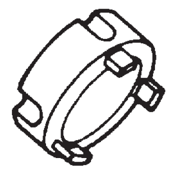
09930-31921
Rotor remover set



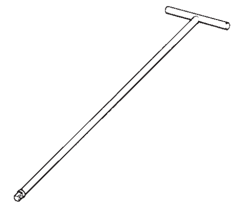
09930-44913
Rotor holder



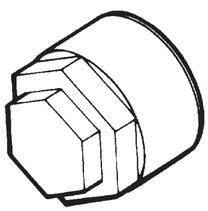
09940-14911
Steering stem nut wrench



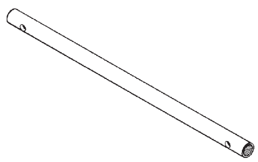
09940-14960
Steering stem nut wrench socket



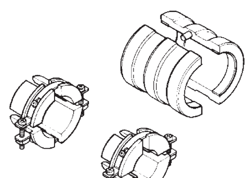
09940-34520
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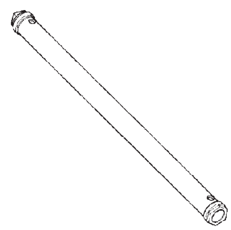
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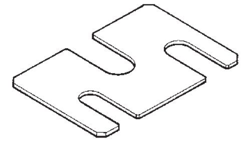
09940-52841
Front fork inner rod holder



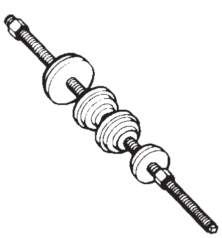
09940-52861
Front fork oil seal installer



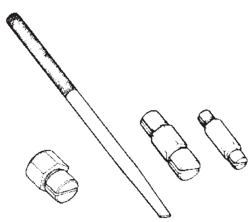
09940-54821
Front fork assembly tool



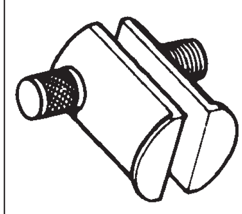
09940-94922
Stopper plate



09941-34513
Bearing installer



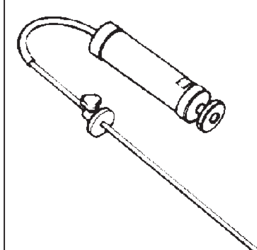
09941-50111
Bearing remover



09941-54911
Bearing outer race remover



09941-74910
Bearing installer



09943-74111
Fork oil level gauge

TIGHTENING TORQUE
ENGINE

ITEM		N·m	kgf-m	lb-ft
Cylinder head cover bolt		14	1.4	10.0
Spark plug		11	1.1	8.0
Cylinder head bolt	M10	46	4.6	33.5
	M6	10	1.0	7.0
Cylinder head side bolt		14	1.4	10.0
Cylinder nut		10	1.0	7.0
Decompression shaft bolt (DR-Z400)		10	1.0	7.0
Decompression shaft lever nut (DR-Z400)		23	2.3	16.5
Camshaft journal holder bolt		10	1.0	7.0
Balancer shaft nut		50	5.0	36.0
Primary drive gear nut		110	11.0	79.5
Generator rotor nut		100	10.0	72.5
Clutch sleeve hub nut		70	7.0	50.5
Gearshift arm stopper		19	1.9	13.5
Gearshift cam driven gear bolt		24	2.4	17.5
Cam chain tension adjuster bolt		10	1.0	7.0
Cam chain tensioner mounting bolt		10	1.0	7.0
Cam chain tensioner spring holder bolt		8	0.8	6.0
Engine oil drain plug (on the crankcase)		21	2.1	15.0
Engine oil drain bolt (on the frame)		18	1.8	13.0
Engine oil lebel bolt		6	0.6	4.5
Crankcase bolt		11	1.1	8.0
Oil strainer (on the frame)		23	2.3	16.5
Oil hose union bolt		23	2.3	16.5
Radiator air bleeder bolt		6.0	0.6	4.3
TDC plug		23	2.3	16.5
Engine mounting nut		66	6.6	47.5
Engine mounting bracket nut		40	4.0	29.0
Exhaust pipe bolt and nut		23	2.3	16.5
Muffler connection bolt		20	2.0	14.5
Muffler mounting bolt		23	2.3	16.5
Engine sprocket nut		110	11.0	79.5
Intake pipe union		8	0.8	6.0
Fuel valve mounting bolt		4.4	0.44	3.2

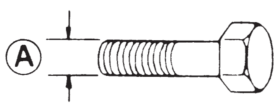
CHASSIS

ITEM		N·m	kgf-m	lb-ft
Handlebar clamp bolt		23	2.3	16.5
Front fork upper clamp bolt		30	3.0	21.5
Front fork lower clamp bolt		32	3.2	23.0
Steering stem head nut		90	9.0	65.0
Front fork cap bolt		23	2.3	16.5
Front fork damper rod bolt		80	8.0	58.0
Front fork inner rod locknut		22	2.2	16.0
Front brake master cylinder mounting bolt		10	1.0	7.0
Rear brake master cylinder mounting bolt		10	1.0	7.0
Brake hose union bolt (front & rear)		23	2.3	16.5
Front brake caliper mounting bolt		26	2.6	19.0
Brake pad mounting pin (front & rear)		18	1.8	13.0
Brake caliper plug (front & rear)		2.5	0.25	1.8
Brake air bleeder valve (front & rear)		7.5	0.75	5.5
Rear brake rod locknut		18	1.8	13.0
Rear brake pedal bolt		29	2.9	21.0
Brake disc mounting bolt (front & rear)		10	1.0	7.0
Front axle nut		42	4.2	30.5
Front axle pinch bolt		18	1.8	13.0
Seat rail mounting nut (upper)		35	3.5	25.5
Seat rail mounting bolt (lower)		35	3.5	25.5
Rear axle nut	E-03, 28	100	10.0	72.5
	The other countries	110	11.0	79.5
Rear sprocket nut		30	3.0	21.5
Drive chain roller mounting bolt (upper & lower)		40	4.0	29.0
Spoke nipple (front & rear)		3	0.3	2.0
Swingarm pivot nut		77	7.7	55.5
Rear shock absorber compression adjuster assembly		30	3.0	21.5
Rear shock absorber spring adjuster lock ring		90	9.0	65.0
Rear shock absorber mounting nut (upper & lower)		55	5.5	40.0
Cushion lever mounting nut (center)		100	10.0	72.5
Cushion lever mounting nut (front)		100	10.0	72.5
Cushion rod mounting nut		100	10.0	72.5
Side stand bolt		50	5.0	36.0
Side stand nut		55	5.5	40.0

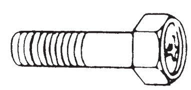
TIGHTENING TORQUE CHART

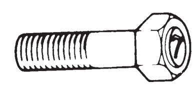
For other nuts and bolts not listed in the preceding page, refer to this chart:

Bolt Diameter	Conventional or "4" marked bolt			"7" marked bolt		
Ⓐ (mm)	N·m	kgf-m	lb-ft	N·m	kgf-m	lb-ft
4	1.5	0.15	1.0	2.3	0.23	1.5
5	3	0.3	2.0	4.5	0.45	3.0
6	5.5	0.55	4.0	10	1.0	7.0
8	13	1.3	9.5	23	2.3	16.5
10	29	2.9	21.0	50	5.0	36.0
12	45	4.5	32.5	85	8.5	61.5
14	65	6.5	47.0	135	13.5	97.5
16	105	10.5	76.0	210	21.0	152.0
18	160	16.0	115.5	240	24.0	173.5



Conventional bolt


"4" marked bolt



"7" marked bolt

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diameter	IN.	36 (1.42)	—
	EX.	29 (1.14)	—
Tappet clearance (when cold)	IN.	0.10 – 0.20 (0.0039 – 0.0079)	—
	EX.	0.20 – 0.30 (0.0079 – 0.0118)	—
Valve-guide-to-valve-stem clearance	IN.	0.010 – 0.037 (0.0004 – 0.0015)	—
	EX.	0.030 – 0.057 (0.0012 – 0.0022)	—
Valve stem deflection	IN. & EX.	—	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.000 – 5.012 (0.1969 – 0.1973)	—
Valve stem O.D.	IN.	4.975 – 4.990 (0.1959 – 0.1965)	—
	EX.	4.955 – 4.970 (0.1951 – 0.1957)	—
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve stem thickness	IN. & EX.	—	0.5 (0.02)
Valve seat width	IN. & EX.	0.9 – 1.1 (0.035 – 0.043)	—
Valve head radial runout	IN. & EX.	—	0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER	—	32.6 (1.28)
	OUTER	—	36.3 (1.43)
Valve spring tension (IN. & EX.)	INNER	56 – 64 N (5.6 – 6.4 kgf, 12.3 – 14.1 lbs) at length 27.4 mm (1.08 in)	—
	OUTER	126 – 145 N (12.6 – 14.5 kgf, 27.7 – 32.0 lbs) at length 30.9 mm (1.22 in)	—

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	36.910 – 36.960 (1.4531 – 1.4551)	36.610 (1.4413)
	EX.	36.880 – 36.930 (1.4520 – 1.4539)	36.580 (1.4402)
Camshaft journal oil clearance	IN. & EX.	0.019 – 0.053 (0.0007 – 0.0021)	0.150 (0.0059)
Camshaft journal holder I.D.	IN. & EX.	22.012 – 22.025 (0.8666 – 0.8671)	—
Camshaft journal O.D.	IN. & EX.	21.972 – 21.993 (0.8653 – 0.8659)	—
Camshaft runout	IN. & EX.	—	0.10 (0.004)
Cam chain pin (at arrow "3")	15th pin		—
Cylinder head distortion	—		0.05 (0.002)
Cylinder head cover distortion	—		0.05 (0.002)
Decompression cable play (DR-Z400)	0 – 0.1 (0 – 0.004)		—

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure (DR-Z400E) (Automatic decompression actuated)	1 000 kPa (10.0 kgf/cm^2, 142 psi)			—
Piston-to-cylinder clearance	0.030 – 0.040 (0.0012 – 0.0016)			0.120 (0.0047)
Cylinder bore	90.000 – 90.015 (3.5433 – 3.5439)			Nicks or scratches
Piston diameter	89.965 – 89.980 (3.5419 – 3.5425) Measure 15 (0.6) from the skirt end			89.880 (3.5386)
Cylinder distortion	—			0.05 (0.002)
Piston ring free end gap	1st	R	Approximately 6.9 (0.27)	5.5 (0.22)
	2nd	R	Approximately 11.5 (0.45)	9.2 (0.36)
Piston ring end gap	1st & 2nd	0.08 – 0.20 (0.003 – 0.008)		0.50 (0.020)
Piston-ring-to-piston-ring-groove clearance	1st	—		0.180 (0.007)
	2nd	—		0.150 (0.006)

ITEM	STANDARD		LIMIT
Piston ring groove width	1st	0.78 – 0.80 (0.0307 – 0.0315) 1.30 – 1.32 (0.0512 – 0.0520)	—
	2nd	0.81 – 0.83 (0.0319 – 0.0327)	—
	Oil	2.01 – 2.03 (0.0791 – 0.0799)	—
Piston ring thickness	1st	0.71 – 0.76 (0.0280 – 0.0299) 1.08 – 1.10 (0.0425 – 0.0433)	—
	2nd	0.77 – 0.79 (0.0303 – 0.0311)	—
Piston pin bore	20.002 – 20.008 (0.7875 – 0.7877)		20.030 (0.7886)
Piston pin O.D.	19.995 – 20.000 (0.7872 – 0.7874)		19.980 (0.7866)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	20.010 – 20.018 (0.7878 – 0.7881)	20.040 (0.7890)
Crank-web-to-crank-web width	62.0 ± 0.1 (2.441 ± 0.004)	—
Conrod deflection	—	3.0 (0.12)
Conrod big end side clearance	0.30 – 0.65 (0.012 – 0.026)	1.0 (0.04)
Conrod big end width	21.95 – 22.00 (0.864 – 0.866)	—
Crankshaft runout	—	0.08 (0.003)

OIL PUMP

Unit: mm (in)

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.220 (74/25 × 20/16 × 12/20)	—
Oil pressure (at 60°C, 140°F)	Above 40 kPa (0.4 kgf/cm², 5.7 psi) Below 140 kPa (1.4 kgf/cm², 19.9 psi) at 3000 r/min	—

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch lever play	10 – 15 (0.4 – 0.6)	—
Clutch drive plate thickness (No. 1 & No. 2)	2.92 – 3.08 (0.115 – 0.121)	2.62 (0.103)
Clutch drive plate claw width (No. 1 & No. 2)	13.7 – 13.8 (0.539 – 0.543)	13.2 (0.520)
Clutch drive plate distortion	—	0.10 (0.004)
Clutch spring free length	—	49.9 (1.96)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD		LIMIT
Primary reduction ratio		2.960 (74/25)		—
Final reduction ratio		3.357 (47/14)		—
Gear ratios	Low	2.285 (32/14)		—
	2nd	1.733 (26/15)		—
	3rd	1.375 (22/16)		—
	4th	1.090 (24/22)		—
	Top	0.863 (19/22)		—
Gearshift-fork-to-gearshift-fork-groove clearance		0.1 – 0.3 (0.004 – 0.012)		0.5 (0.02)
Gearshift fork groove width		No. 1, No. 2 & No. 3	4.8 – 4.9 (0.189 – 0.193)	—
Gearshift fork thickness		No. 1, No. 2 & No. 3	4.6 – 4.7 (0.181 – 0.185)	—
Drive chain		Type	RK520KZO	—
		Links	112	—
		20-pitch length	—	319.4 (12.57)
Drive chain slack		40 – 50 (1.6 – 2.0)		—

CARBURETOR

ITEM		SPECIFICATION			
		DR-Z400		DR-Z400E	
		E-01	E-03, 28	E-01	E-03, 28
Carburetor type		KEIHIN FCR39H	←	←	←
Bore size		39 mm (1.5 in)	←	←	←
I.D. No.		29F0	29F1	29F3	29F4
Idle r/min		1800 ± 100 r/min	←	←	←
Float height		9.0 ± 1.0 mm (0.35 ± 0.04 in)	←	←	←
Main jet	(M.J.)	#165	#142	#165	#142
Main air jet	(M.A.J.)	#200	←	←	←
Jet needle	(J.N.)	OBDXP-4th	←	←	←
Needle jet	(N.J.)	2.9 mm (0.11 in)	←	←	←
Slow jet	(S.J.)	#45	←	←	←
Slow air jet	(S.A.J.)	#60	←	←	←
Air jet	(A.J.)	#90	←	←	←
Pilot screw	(P.S.)	1 1/2 turns out	←	←	←
Throttle cable play		2 – 4 mm (0.08 – 0.16 in)	←	←	←

RADIATOR + ENGINE COOLANT

ITEM	STANDARD/SPECIFICATION	NOTE
Radiator cap valve opening pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm^2, 13.5 – 17.8 psi)	
Engine coolant type	Use an antifreeze/coolant compatible with aluminum radiators, mixed with distilled water only, at the ratio of 50:50	
Engine coolant capacity	1 250 ml (1.3 US qt, 1.1 Imp qt)	

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Rear brake pedal height	5 (0.2)		—
Brake disc thickness	Front	3.0 ± 0.2 (0.118 ± 0.008)	2.5 (0.10)
	Rear	4.5 ± 0.2 (0.177 ± 0.008)	4.0 (0.16)
Brake disc runout	Front & Rear	—	0.30 (0.01)
Master cylinder bore	Front	11.000 – 11.043 (0.4331 – 0.4348)	—
	Rear	12.700 – 12.743 (0.5000 – 0.5017)	—
Master cylinder piston diameter	Front	10.957 – 10.984 (0.4314 – 0.4324)	—
	Rear	12.657 – 12.684 (0.4983 – 0.4994)	—
Brake caliper cylinder bore	Front	27.000 – 27.050 (1.0630 – 1.0650)	—
	Rear	27.000 – 27.050 (1.0630 – 1.0650)	—
Brake caliper piston diameter	Front	26.900 – 26.950 (1.0591 – 1.0610)	—
	Rear	26.900 – 26.950 (1.0591 – 1.0610)	—
Brake fluid type	DOT 4		—
Wheel rim runout	Axial	—	2.0 (0.08)
	Radial	—	2.0 (0.08)
Wheel rim size	Front	1.60 × 21	—
	Rear	2.15 × 18	—
Wheel axle runout	Front	—	0.25 (0.010)
	Rear	—	0.25 (0.010)

TIRE

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Cold inflation tire pressure (Solo riding)	Front	100 kPa (1.0 kgf/cm^2, 14 psi)	—
	Rear	100 kPa (1.0 kgf/cm^2, 14 psi)	—
Tire size	Front	80/100 – 21 51M	—
	Rear	110/100 – 18 64M	—
Tire tread depth	Front	—	4.0 (0.16)
	Rear	—	4.0 (0.16)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Front fork stroke	288 (11.3)		—
Front fork spring free length	510.6 (20.1)		500 (19.7)
Front fork oil level (without spring)	122 (4.8)		—
Front fork oil type	SUZUKI FORK OIL SS-05 or an equivalent fork oil		—
Front fork oil capacity (each leg)	720 ml (24.3 US oz, 25.4 Imp oz)		—
Front fork damping force adjuster	Rebound	15 clicks out	—
	Compression	12 clicks out	—
Rear shock absorber gas pressure	900 kPa (9.0 kgf/cm^2, 128 psi)		—
Rear shock absorber oil type	SUZUKI REAR SUSPENSION OIL SS-25 or an equivalent suspension oil		—
Rear shock absorber oil capacity	380 ml (12.8 US oz, 13.4 Imp oz)		—
Rear shock absorber spring pre-set length	258.0 (10.2)		—
Rear shock absorber damping force adjuster	Rebound	13 clicks out	—
	Compression	12 clicks out	—
Rear wheel travel	295 (11.6)		—
Swingarm pivot shaft runout	—		0.3 (0.01)

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION		NOTE
Spark plug		Type	NGK: CR8E DENSO: U24 ESR-N	
		Gap	0.7 – 0.8 (0.028 – 0.031)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0.1 – 1.0 Ω	Terminal – Ground
		Secondary	12 – 20 kΩ	Plug cap – Terminal
Ignition coil primary peak voltage		More than 150 V (⊕:B/W, ⊖:B/Y)		
Generator coil resistance		Signal coil	0.05 – 0.20 Ω	B – W
		Pickup coil	390 – 600 Ω	G – Bl
		Charging coil	0.50 – 1.25 Ω	Y – Y
Pickup coil peak voltage		More than 10.0 V (⊕:Bl, ⊖:G)		DR-Z400
		More than 5.0 V (⊕:Bl, ⊖:G)		DR-Z400E
Signal coil peak voltage		More than 1.0 V (⊕:B, ⊖:W)		DR-Z400
		More than 1.4 V (⊕:B, ⊖:W)		DR-Z400E
Generator no-load voltage (when engine is cold)		More than 55 V (AC) at 5 000 r/min (Y–Y)		DR-Z400
		More than 75V (AC) at 5 000 r/min (Y–Y)		DR-Z400E
Regulated voltage		12.5 – 14.0 V at 5 000 r/min		DR-Z400
		13.5 – 15.0 V at 5 000 r/min		DR-Z400E
Generator maximum output		150 W at 5 000 r/min		DR-Z400
		200 W at 5 000 r/min		DR-Z400E
Starter relay resistance		3 – 5 Ω		DR-Z400E
Battery	Type designation	GT7B-4		DR-Z400E
	Capacity	12 V 23.4 kC (6.5 Ah)/10 HR		

WATTAGE

Unit: W

ITEM	SPECIFICATION
Headlight	55
Taillight	LED

FUEL + OIL

ITEM		SPECIFICATION		NOTE
Fuel type		Use only unleaded gasoline of at least 90 pump octane ($\frac{R+M}{2}$). Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10 % ethanol, or less than 5 % methanol with appropriate cosolvents and corrosion inhibitor is permissible.		E-03, 28
		Gasoline used should be graded 95 octane or higher. An unleaded gasoline is recommended.		E-01
Fuel tank including reserve		10.0 L (2.6 US gal, 2.2 Imp gal)		
	reserve	2.3 L (0.6 US gal, 0.5 Imp gal)		
Engine oil type		SAE 10 W-40, API SF or SG		
Engine oil capacity		Change	1 700 ml (1.8 US qt, 1.5 Imp qt)	
		Filter change	1 800 ml (1.9 US qt, 1.6 Imp qt)	
		Overhaul	1 900 ml (2.0 US qt, 1.7 Imp qt)	

DR-Z400EY (E-24 MODEL)

This chapter describes service specifications, service data and servicing procedures which differ from those of the DR-Z400Y/EY (E-01, 03 and 28 models).

NOTE:

** Any difference between the DR-Z400Y/EY (E-01, 03 and 28 models) and DR-Z400EY (E-24 model) in specifications and service data are clearly indicated with an asterisk (*).*

** Please refer to the chapters 1 through 8 for details which are not given in this chapter.*

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SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 310 mm (90.9 in)
Overall width	825 mm (32.5 in)
Overall height	1 245 mm (49.0 in)
Wheelbase	1 475 mm (58.1 in)
Ground clearance	315 mm (12.4 in)
Seat height	935 mm (36.8 in)
Dry mass	127 kg (279 lbs)

ENGINE

Type	Four-stroke, liquid-cooled, DOHC
Number of cylinders	1
Bore	90.0 mm (3.543 in)
Stroke	62.6 mm (2.465 in)
Piston displacement	398 cm^3 (24.3 cu. in)
Compression ratio	12.2 : 1
Carburetor	KEIHIN FCR39
Air cleaner	Polyurethane foam element
Starter system	Electric
Lubrication system	Dry sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction ratio	2.960 (74/25)
Final reduction ratio	3.357 (47/14)
Gear ratios, Low	2.285 (32/14)
2nd	1.733 (26/15)
3rd	1.375 (22/16)
4th	1.090 (24/22)
Top	0.863 (19/22)
Drive chain	RK520KZO, 112 links

CHASSIS

Front suspension	Telescopic, coil spring, oil damped, rebound damping force 18-way adjustable, compression damping force 14-way adjustable
Rear suspension	Link type, coil spring, oil damped, spring preload fully adjustable, rebound damping force 21-way adjustable, compression damping force 26-way adjustable
Front fork stroke	288 mm (11.3 in)
Rear wheel travel	295 mm (11.6 in)
Caster	27° 20´
Trail	112 mm (4.41 in)
Steering angle	45° (right & left)
Turning radius	2.2 m (7.2 ft)
Front brake	Disc brake
Rear brake	Disc brake
Front tire size	*80/100-21 51P
Rear tire size	*120/90-18 65P

ELECTRICAL

Ignition type	Electronic ignition (CDI)
Ignition timing	7° BTDC at 1 800 r/min
Spark plug	NGK: CR8E DENSO: U24ESR-N
Generator	Three-phase A.C. generator
Battery	12 V 23.4 kC (6.5 Ah)/10 HR
Fuse	*20 A
Headlight	*12 V 60/55 W
Brake light/Taillight	*12 V 21/5 W
Turn signal light	*12 V 21 W
Speedometer light	*LED
Neutral indicator light	*12 V 2 W
High beam indicator light	*12 V 2 W
Turn signal indicator light	*12 V 2 W

CAPACITIES

Fuel tank, including reserve	10.0 L (2.6 US gal, 2.2 Imp gal)
reserve	2.3 L (0.6 US gal, 0.5 Imp gal)
Engine oil, oil change	1 700 ml (1.8 US qt, 1.5 Imp qt)
oil and filter change	1 800 ml (1.9 US qt, 1.6 Imp qt)
engine overhaul	1 900 ml (2.0 US qt, 1.7 Imp qt)
Front fork oil	720 ml (24.3 US oz, 25.4 Imp oz)
Engine coolant	1 250 ml (1.3 US qt, 1.1 Imp qt)

NOTE:
These specifications are subject to change without notice.

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	36 (1.42)	———
	EX.	29 (1.14)	———
Tappet clearance (when cold)	IN.	0.10 – 0.20 (0.0039 – 0.0078)	———
	EX.	0.20 – 0.30 (0.0078 – 0.0118)	———
Valve guide to valve stem clearance	IN.	0.010 – 0.037 (0.0004 – 0.0015)	———
	EX.	0.030 – 0.057 (0.0012 – 0.0022)	———
Valve stem deflection	IN. & EX.	———	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.000 – 5.012 (0.1969 – 0.1973)	———
Valve stem O.D.	IN.	4.975 – 4.990 (0.1959 – 0.1965)	———
	EX.	4.955 – 4.970 (0.1951 – 0.1957)	———
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve seat width	IN. & EX.	0.9 – 1.1 (0.035 – 0.043)	———
Valve head radial runout	IN. & EX.	———	0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER	———	32.6 (1.28)
	OUTER	———	36.3 (1.43)
Valve spring tension (IN. & EX.)	INNER	56 – 64 N (5.6 – 6.4 kgf, 12.3 – 14.1 lbs) at length 27.4 mm (1.08 in)	———
	OUTER	126 – 145 N (12.6 – 14.5 kgf, 27.7 – 32.0 lbs) at length 30.9 mm (1.22 in)	———

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	36.910 – 36.960 (1.4531 – 1.4551)	36.610 (1.4413)
	EX.	36.880 – 36.930 (1.4520 – 1.4539)	36.580 (1.4402)
Camshaft journal oil clearance	IN. & EX.	0.019 – 0.053 (0.0007 – 0.0021)	0.150 (0.0059)
Camshaft journal holder I.D.	IN. & EX.	22.012 – 22.025 (0.8666 – 0.8671)	———
Camshaft journal O.D.	IN. & EX.	21.972 – 21.993 (0.8653 – 0.8659)	———
Camshaft runout	———		0.10 (0.004)
Cam chain pin (at arrow “3”)	15th pin		———
Cylinder head distortion	———		0.05 (0.002)
Cylinder head cover distortion	———		0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure (Automatic de-comp. actuated)	1 000 kPa (10.0 kgf/cm², 142 psi)			———
Piston to cylinder clearance	0.030 – 0.040 (0.0012 – 0.0016)			0.120 (0.0047)
Cylinder bore	90.000 – 90.015 (3.5433 – 3.5439)			Nicks or Scratches
Piston diam.	89.965 – 89.980 (3.5419 – 3.5425) Measure at 15 mm (0.6 in) from the skirt end.			89.880 (3.5386)
Cylinder distortion	———			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 6.9 (0.27)	5.5 (0.22)
	2nd	R	Approx. 11.5 (0.45)	9.2 (0.36)
Piston ring end gap	1st		0.08 – 0.20 (0.003 – 0.008)	0.50 (0.020)
	2nd		0.08 – 0.20 (0.003 – 0.008)	0.50 (0.020)
Piston ring to groove clearance	1st		———	0.180 (0.007)
	2nd		———	0.150 (0.006)

ITEM	STANDARD		LIMIT
Piston ring groove width	1st	0.78 – 0.80 (0.0307 – 0.0315)	———
		1.30 – 1.32 (0.0512 – 0.0520)	———
	2nd	0.81 – 0.83 (0.0319 – 0.0327)	———
	Oil	2.01 – 2.03 (0.0791 – 0.0799)	———
Piston ring thickness	1st	0.71 – 0.76 (0.0280 – 0.0299)	———
		1.08 – 1.10 (0.0425 – 0.0433)	———
	2nd	0.77 – 0.79 (0.0303 – 0.0311)	———
Piston pin bore	20.002 – 20.008 (0.7875 – 0.7877)		20.030 (0.7886)
Piston pin O.D.	19.995 – 20.000 (0.7872 – 0.7874)		19.980 (0.7866)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	20.010 – 20.018 (0.7878 – 0.7881)	20.040 (0.7890)
Conrod deflection	———	3.0 (0.12)
Conrod big end side clearance	0.30 – 0.65 (0.012 – 0.026)	1.0 (0.04)
Conrod big end width	21.95 – 22.00 (0.864 – 0.866)	———
Crank web to web width	62.0 ± 0.1 (2.441 ± 0.004)	———
Crankshaft runout	———	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.220 (74/25 × 20/16 × 12/20)	———
Oil pressure (at 60°C, 140°F)	Above 40 kPa (0.4 kgf/cm^2, 5.7 psi) Below 140 kPa (1.4 kgf/cm^2, 19.9 psi) at 3 000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	10 – 15 (0.4 – 0.6)	———
Drive plate thickness (No. 1 & No. 2)	2.92 – 3.08 (0.115 – 0.121)	2.62 (0.103)
Drive plate claw width (No. 1 & No. 2)	13.7 – 13.8 (0.539 – 0.543)	13.2 (0.520)
Driven plate distortion	———	0.10 (0.004)
Clutch spring free length	———	49.9 (1.96)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD		LIMIT
Primary reduction ratio		2.960 (74/25)		———
Final reduction ratio		3.357 (47/14)		———
Gear ratios	Low	2.285 (32/14)		———
	2nd	1.733 (26/15)		———
	3rd	1.375 (22/16)		———
	4th	1.090 (24/22)		———
	Top	0.863 (19/22)		———
Shift fork to groove clearance		0.1 – 0.3 (0.004 – 0.012)		0.5 (0.020)
Shift fork groove width		No.1, No.2 & No.3	4.8 – 4.9 (0.189 – 0.193)	———
Shift fork thickness		No.1, No.2 & No.3	4.6 – 4.7 (0.181 – 0.185)	———
Drive chain		Type	RK520KZO	———
		Links	112	———
		20-pitch length	———	319.4 (12.57)
Drive chain slack		40 – 50 (1.6 – 2.0)		———

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		KEIHIN FCR39H
Bore size		39 mm (1.5 in)
I.D. No		* 29F6
Idle r/min.		1 800 ± 100 r/min
Float height		9.0 ± 1.0 mm (0.35 ± 0.04 in)
Main jet	(M.J.)	#165
Jet needle	(J.N.)	OBDXP-4th
Needle jet	(N.J.)	2.9 mm (0.11 in)

ITEM		SPECIFICATION
Slow jet	(S.J.)	#45
Slow air jet	(S.A.J.)	#60
Air jet	(A.J.)	#90
Pilot screw	(P.S.)	* 2¾ turns back
Throttle cable play (pulling cable)		2 – 4 mm (0.08 – 0.16 in)

RADIATOR + ENGINE COOLANT

ITEM	STANDARD/SPECIFICATION	NOTE
Radiator cap valve opening pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm^2, 13.5 – 17.8 psi)	
Engine coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50 : 50.	
Engine coolant capacity	1 250 ml (1.3/1.1 US/Imp qt)	

BRAKE + WHEEL

Unit: mm (in)

ITEM		STANDARD/SPECIFICATION	LIMIT
Brake lever play		0.1 – 0.3 (0.004 – 0.010)	———
Rear brake pedal height		5 (0.2)	———
Brake disc thickness	Front	3.0 ± 0.2 (0.118 ± 0.008)	2.5 (0.098)
	Rear	4.5 ± 0.2 (0.177 ± 0.008)	4.0 (0.16)
Brake disc runout		———	0.30 (0.012)
Master cylinder bore	Front	* 12.700 – 12.743 (0.5000 – 0.5017)	———
	Rear	12.700 – 12.743 (0.5000 – 0.5017)	———
Master cylinder piston diam.	Front	* 12.657 – 12.684 (0.4983 – 0.4994)	———
	Rear	12.657 – 12.684 (0.4983 – 0.4994)	———
Brake caliper cylinder bore	Front	27.000 – 27.050 (1.0630 – 1.0650)	———
	Rear	27.000 – 27.050 (1.0630 – 1.0650)	———
Brake caliper piston diam.	Front	26.900 – 26.950 (1.0591 – 1.0610)	———
	Rear	26.900 – 26.950 (1.0591 – 1.0610)	———
Brake fluid type		DOT 4	———

ITEM	STANDARD		LIMIT
Wheel rim runout	Axial	———	2.0 (0.08)
	Radial	———	2.0 (0.08)
Wheel axle runout	Front	———	0.25 (0.010)
	Rear	———	0.25 (0.010)
Wheel rim size	Front	1.60 × 21	———
	Rear	2.15 × 18	———

TIRE

ITEM	STANDARD/SPECIFICATION		LIMIT
Cold inflation tire pressure (Solo riding)	Front	* 125 kPa (1.25 kgf/cm², 18 psi)	———
	Rear	* 125 kPa (1.25 kgf/cm², 18 psi)	———
Tire size	Front	* 80/100-21 51P	———
	Rear	* 120/90-18 65P	———
Tire tread depth	Front	———	4.0 mm (0.16 in)
	Rear	———	4.0 mm (0.16 in)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Front fork stroke	288 (11.3)		———
Front fork spring free length	510.6 (20.1)		500 (19.7)
Front fork oil level (without spring)	122 (4.8)		———
Front fork oil type	SUZUKI FORK OIL SS-05 or an equivalent fork oil		———
Front fork oil capacity (each leg)	720 ml (24.3/25.4 US/Imp oz)		———
Front fork damping force adjuster	Rebound	15th clicks turn back	———
	Compression	12th clicks turn back	———
Rear shock absorber gas pressure	900 kPa (9.0 kgf/cm², 128 psi)		———
Rear shock absorber oil type	SUZUKI REAR SUSPENSION OIL SS-25 or an equivalent suspension oil		———
Rear shock absorber oil capacity	380 ml (12.8/13.4 US/Imp oz)		———
Rear shock absorber spring pre-set length	258.0 (10.2)		———
Rear shock absorber damping force adjuster	Rebound	13th clicks turn back	———
	Compression	12th clicks turn back	———

ITEM	STANDARD/SPECIFICATION	LIMIT
Rear wheel travel	295 (11.6)	———
Swingarm pivot shaft runout	———	0.3 (0.01)

ELECTRICAL

ITEM		SPECIFICATION		NOTE
Spark plug		Type	DENSO: U24ESR-N NGK: CR8E	
		Gap	0.7 – 0.8 mm (0.028 – 0.031 mm)	
Spark performance		Over 8 mm (0.3 in) at 1 atm.		
Ignition coil resistance		Primary	0.1 – 1.0 Ω	Terminal – Ground
		Secondary	12 – 20 kΩ	Plug cap – Terminal
Ignition coil primary peak voltage		More than 150 V		⊕ : B/W, ⊖ : B/Y
Generator coil resistance		Charging	0.50 – 1.25 Ω	Y – Y
		Signal coil	0.05 – 0.20 Ω	B – W
		Pick-up coil	390 – 600 Ω	G – Bl
Pick-up coil peak voltage		More than 5.0 V		⊕ : Bl, ⊖ : G
Signal coil peak voltage		More than 1.4 V		⊕ : B, ⊖ : W
Generator no-load voltage (when engine is cold)		More than 75 V (AC) at 5 000 r/min.		Y – Y
Regulated voltage		13.5 – 15.0 V at 5 000 r/min.		
Generator Max. output		200 W at 5 000 r/min.		
Starter relay resistance		3 – 5 Ω		
Battery	Type designation	GT7B-4		
	Capacity	12 V 23.4 kC (6.5 Ah)/10 HR		
Fuse size		* 20 A		

WATTAGE

Unit: W

ITEM		SPECIFICATION
Headlight	HI	* 60
	LO	* 55
Brake light/Taillight		* 21/5
Turn signal light		* 21
Speedometer light		* LED
Neutral indicator light		* 2
High beam indicator light		* 2
Turn signal indicator light		* 2

FUEL + OIL

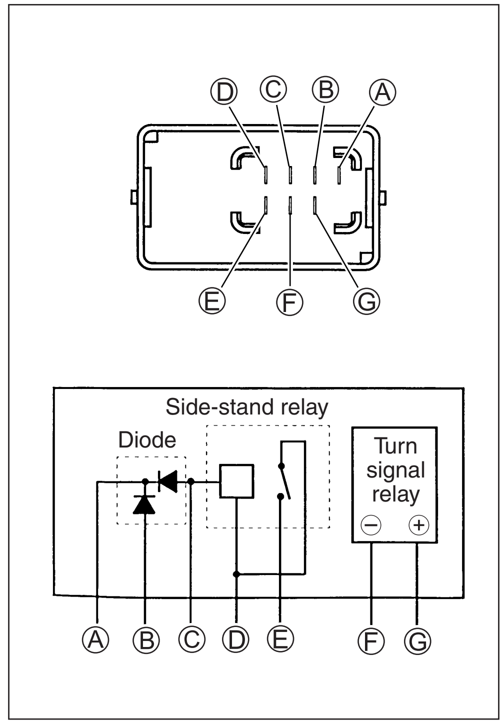
ITEM		SPECIFICATION		NOTE
Fuel type		Gasoline used should be graded 95 octane or higher. An unleaded gasoline is recommended.		
Fuel tank including	reserve	10.0 L (2.6/2.2 US/lmp gal)		
	reserve	2.3 L (0.6/0.5 US/lmp gal)		
Engine oil type		SAE 10W/40, API SF or SG		
Engine oil capacity		Change	1 700 ml (1.8/1.5 US/lmp qt)	
		Filter change	1 800 ml (1.9/1.6 US/lmp qt)	
		Overhaul	1 900 ml (2.0/1.7 US/lmp qt)	

SIDE-STAND/IGNITION INTERLOCK SYSTEM

This side-stand/ignition interlock system is to prevent starting the motorcycle with the side-stand left down.

SIDE-STAND RELAY INSPECTION

First check the insulation between Ⓓ and Ⓔ terminals with the tester. Then apply 12 V to terminals Ⓓ and Ⓒ (⊕ to Ⓓ and ⊖ to Ⓒ) and check the continuity between Ⓓ and Ⓔ. If there is no continuity, replace the turn signal/side-stand relay with a new one.

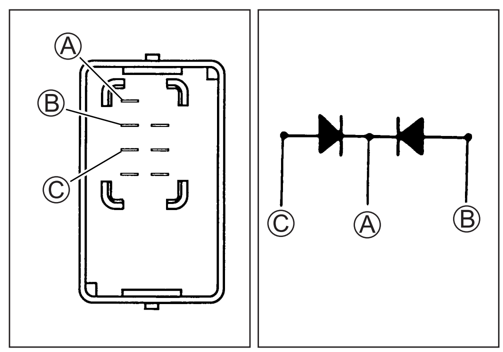


TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Continuity test (•)))

DIODE INSPECTION

Measure the voltage between the terminals using the multi circuit tester. Refer to the following table.



Unit: V

⊖ Probe of tester to: \ ⊕ Probe of tester to:	Ⓒ, Ⓑ	Ⓐ
Ⓒ, Ⓑ		1.4 – 1.5
Ⓐ	0.4 – 0.6	

TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Diode test (⊣◀–)

NOTE:
If the multi circuit tester reads under 1.4 V, replace its battery when the tester probes are not connected.

NEUTRAL SWITCH (☞9-13)

SIDE-STAND SWITCH INSPECTION

Disconnect the side-stand switch lead wire coupler and measure the voltage between Green and Black/White lead wires.

TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Diode test (⊣◀–)

NOTE:
If the multi circuit tester reads under 1.4 V, replace its battery when the tester probes are not connected.

	Green (⊕ Probe)	Black/White (⊖ Probe)
ON (Up-right position)	0.4 – 0.6 V	
OFF (Down position)	1.4 – 1.5 V	

SWITCHES

Measure each switch for continuity using a multi circuit tester. If any abnormality is found, replace the respective switch assemblies with a new one.

TOOL 09900-25008: Multi circuit tester set

IGNITION SWITCH

Position \ Color	R	O
ON	○──	──○
OFF		

STARTER BUTTON

Position \ Color	O/W	Y/G
•		
PUSH	○──	──○

ENGINE STOP SWITCH

Position \ Color	O/Y	O/W
OFF (⊗)		
RUN (↻)	○──	──○

HORN BUTTON

Position \ Color	B/Bl	B/W
•		
PUSH	○──	──○

TURN SIGNAL SWITCH

Position \ Color	Lg	Lbl	B
L (⇦)		○──	──○
PUSH			
R (⇨)	○──	──○	

NEUTRAL SWITCH

Position \ Color	Bl	Ground
ON	○──	──○
OFF		

DIMMER SWITCH

Position \ Color	Y/W	W	Y
HI (≣D)	○──	────	──○
LO (≣D)	○──	──○	

PASSING LIGHT SWITCH

Position \ Color	O/R	Y
•		
PUSH	○──	──○

FRONT BRAKE LIGHT SWITCH

Position \ Color	B	B/R
ON	○──	──○
OFF		

REAR BRAKE LIGHT SWITCH

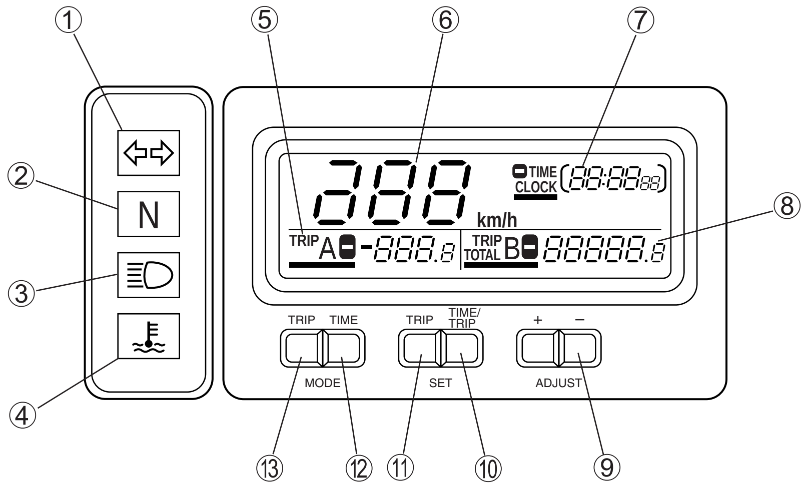
Position \ Color	O	W/B
ON	○──	──○
OFF		

WIRE COLOR

B : Black
Bl : Blue
Lbl : Light blue
Lg : Light green
O : Orange
R : Red
W : White
Y : Yellow
B/Bl : Black with Blue tracer
B/R : Black with Red tracer
B/W : Black with White tracer
O/R : Orange with Red tracer
O/W : Orange with White tracer
O/Y : Orange with Yellow tracer
W/B : White with Black tracer
Y/G : Yellow with Green tracer
Y/W : Yellow with White tracer

SPEEDOMETER

PARTS NAMES



① Turn signal indicator light
② Neutral indicator light
③ High beam indicator light
④ Engine coolant temperature indicator light
⑤ Tripmeter A
⑥ Speedometer
⑦ Clock/stopwatch/timer
⑧ Tripmeter B/odometer
⑨ ADJUST button
⑩ SET TIME/TRIP button
⑪ SET TRIP button
⑫ MODE TIME button
⑬ MODE TRIP button

OPERATING PROCEDURE

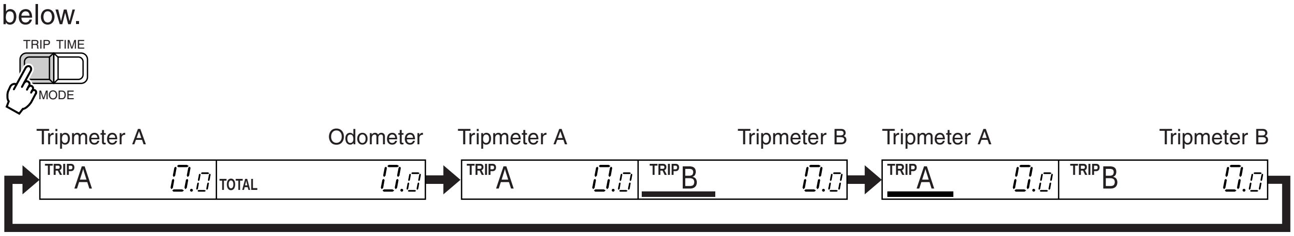
INITIAL DISPLAY

When the ignition switch is set to ON, all indicators light up for one second.

NOTE:
If the power supply is cut (e.g., when the battery is replaced):
* *The speedometer, clock, tripmeter A and odometer are displayed after the initial display appears.*
* *Since the clock resets to "1:00 00", it will need to be readjusted.*
* *The odometer, tripmeter A and B, tripmeter calculation modes (addition and subtraction), and the calibration coefficients are not affected.*

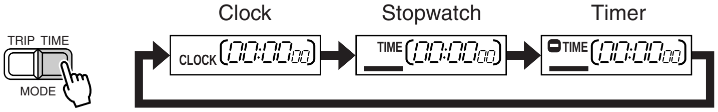
CHANGING THE DISPLAY MODE

With each press of the MODE TRIP button, the display changes between tripmeter A, tripmeter B and the odometer as shown below.



NOTE:
* *The cursor (—) indicates that the setting can be changed. The cursor appears at only one position at a time.*

With each press of the MODE TIME button, the display changes between the clock, the stopwatch and the timer as shown below.



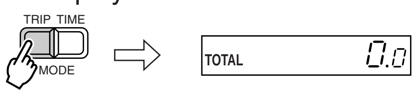
⚠ WARNING

To avoid riding with only one hand, do not operate the buttons while riding.

NOTE:
* *Make sure not to press more than one button at a time.*
* *Before performing the operations described in this section, be sure to start the engine in order to prevent the battery from being drained.*

ODOMETER

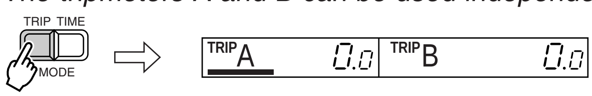
- Displays the total distance travelled



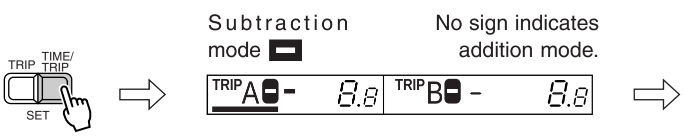
TRIPMETER

- Displays the distance travelled since the tripmeter was last reset.

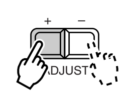
NOTE:
The tripmeters A and B can be used independently.



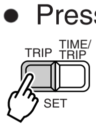
- Switching between addition and subtraction modes



Make addition or subtraction calculations.

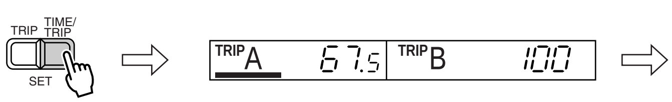


- Press the SET TRIP button to reset the tripmeter.

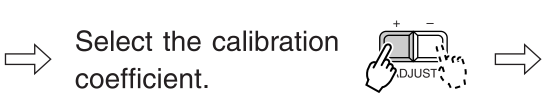


- Displays the distance with a calibration coefficient (70 – 130 %) applied

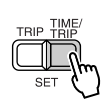
Hold down the SET TIME/TRIP button for three seconds.



Select the calibration coefficient.

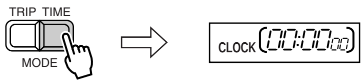


Return to the normal display.



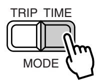
CLOCK

- Displays the time (hours, minutes and seconds) on a 24-hour clock



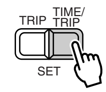
- Setting the time

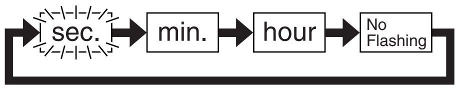
Hold down the MODE TIME button for three seconds.



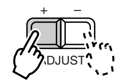


The setting that is flashing can be changed.

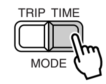




Select the correct time.

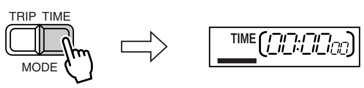


Return to the normal display.

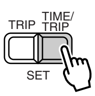


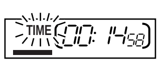
STOPWATCH

- This 24-hour stopwatch displays the minutes, seconds and 1/100 seconds up to one hour. After one hour, the hours, minutes and seconds are displayed.

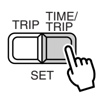


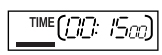
Start





Stop

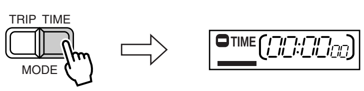




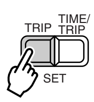
Hold down the button for three seconds to reset the stopwatch.

TIMER

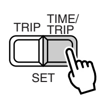
- This 24-hour timer (or countdown timer) displays the minutes, seconds and 1/100 seconds up to one hour. After one hour, the hours, minutes and seconds are displayed.

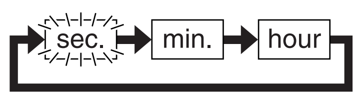


Set the timer.

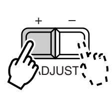


The setting that is flashing can be changed.

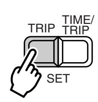




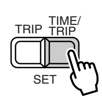
Select the time that the timer will countdown from.



Finish entering settings.

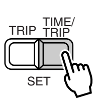


Start

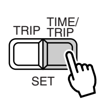




Stop

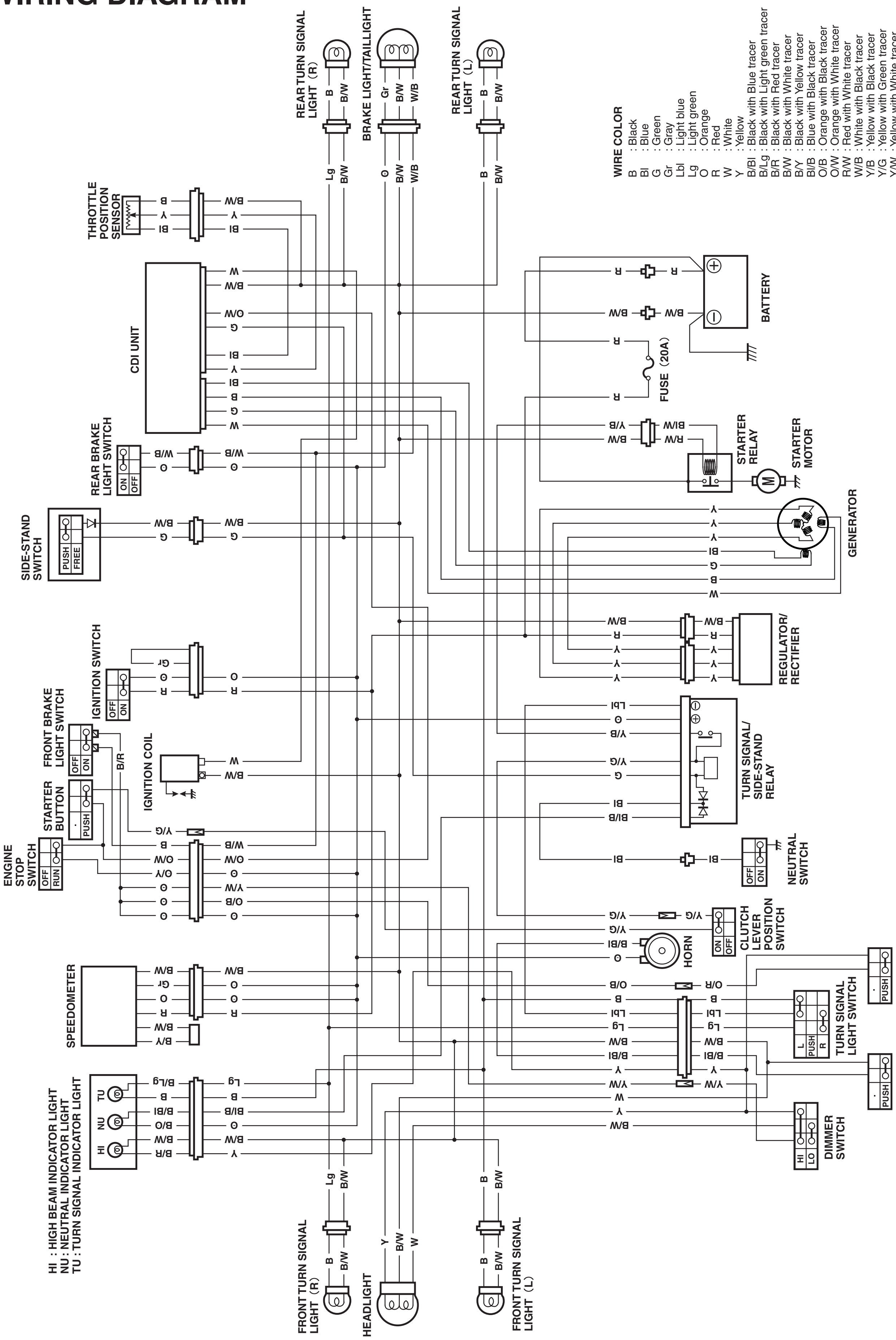


Hold down the button for three seconds to reset the timer.



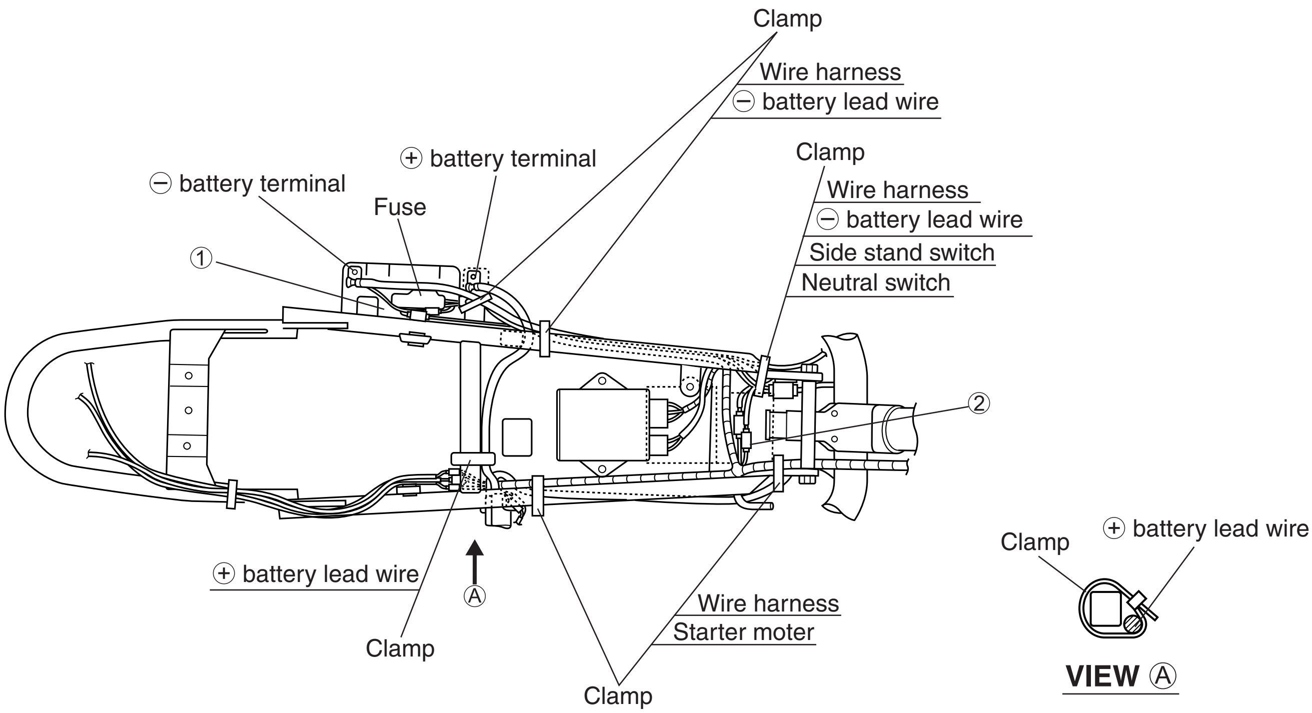


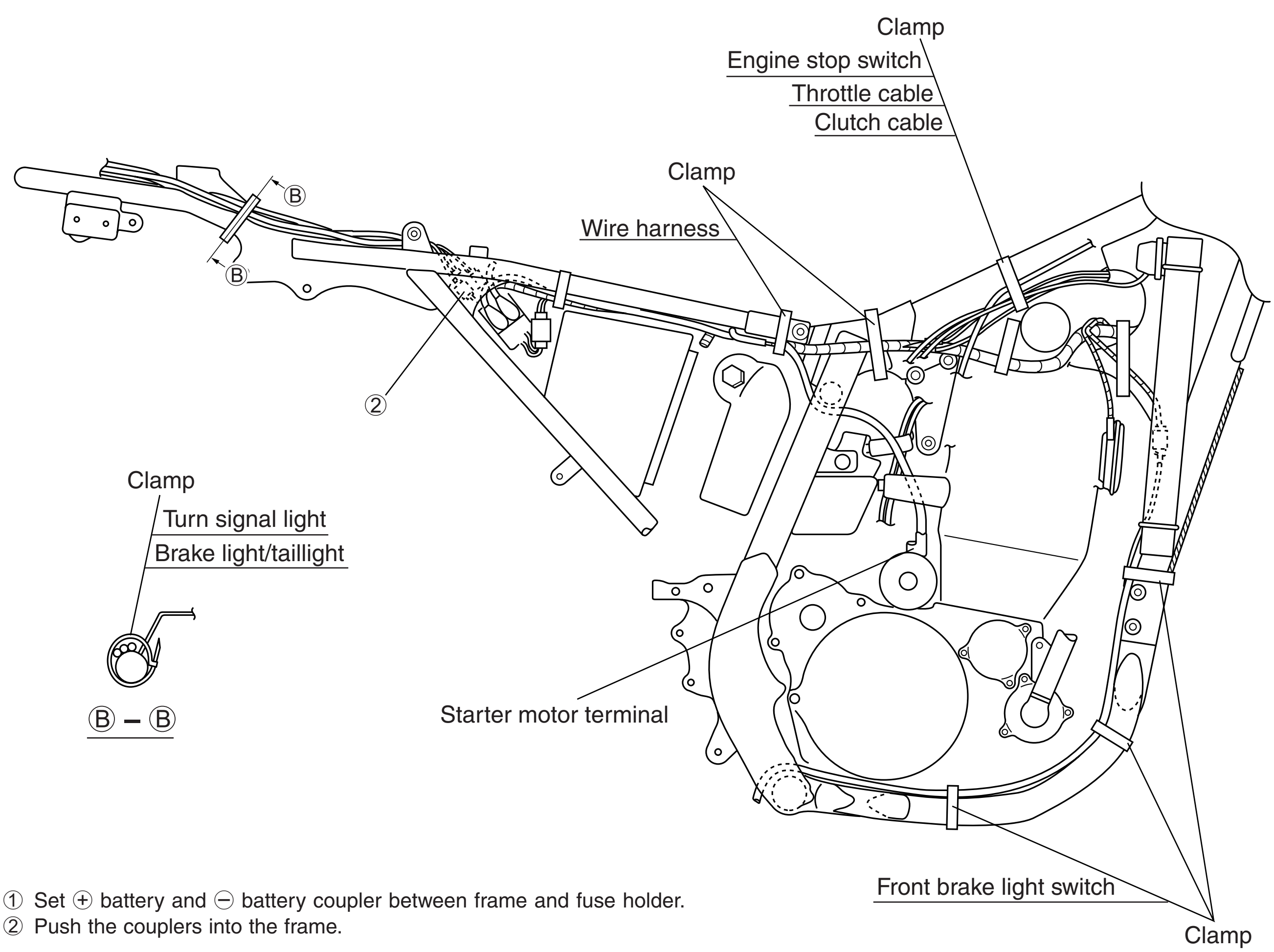
WIRING DIAGRAM



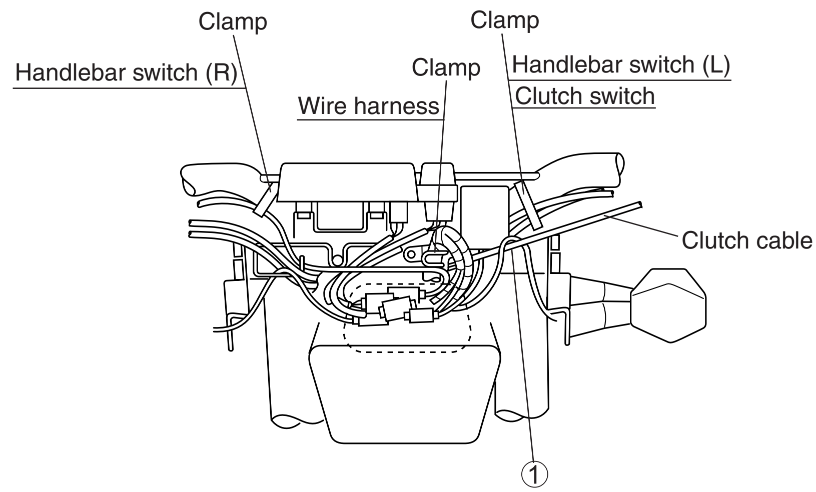
WIRE, CABLE AND HOSE ROUTING

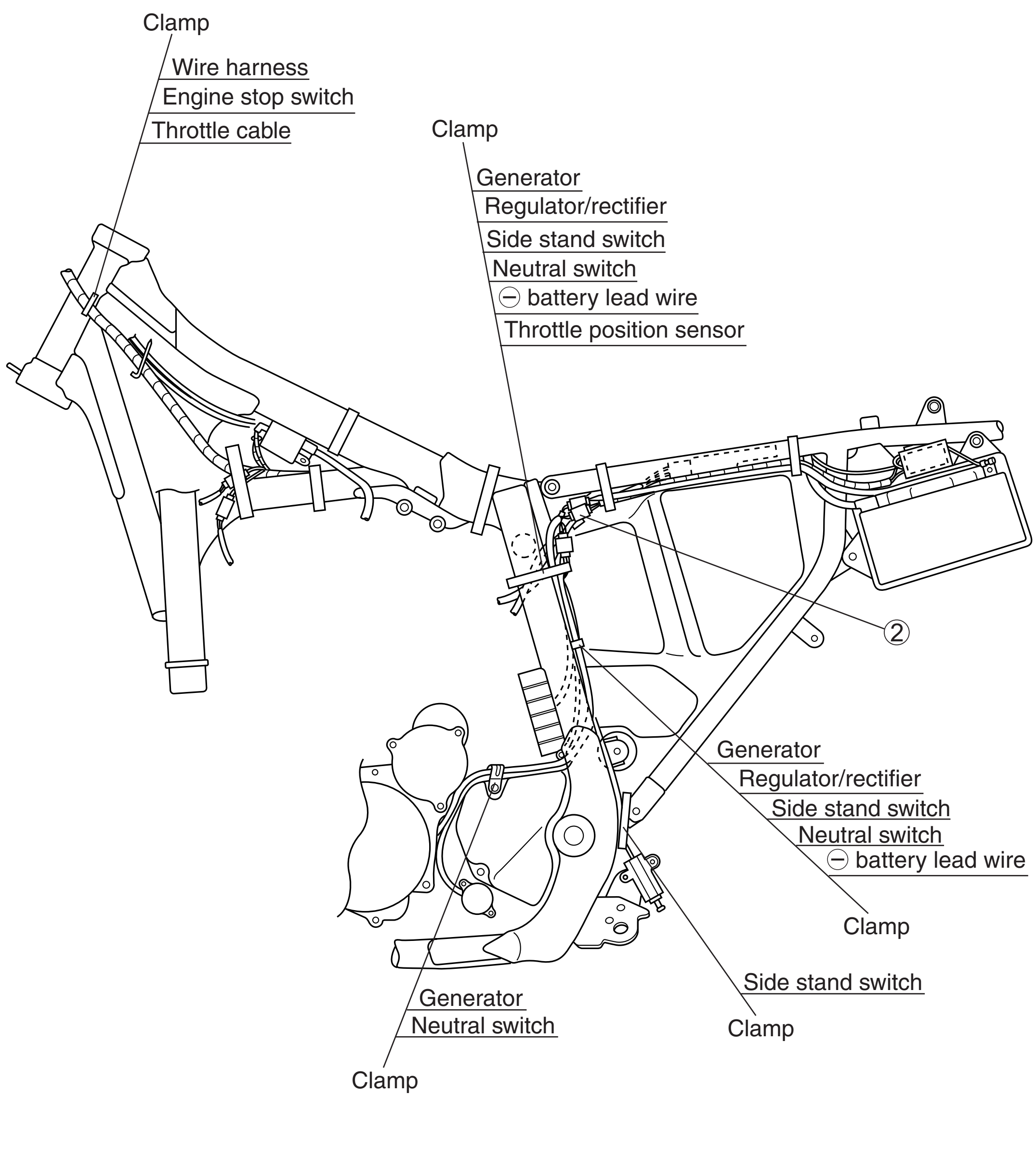
WIRE ROUTING





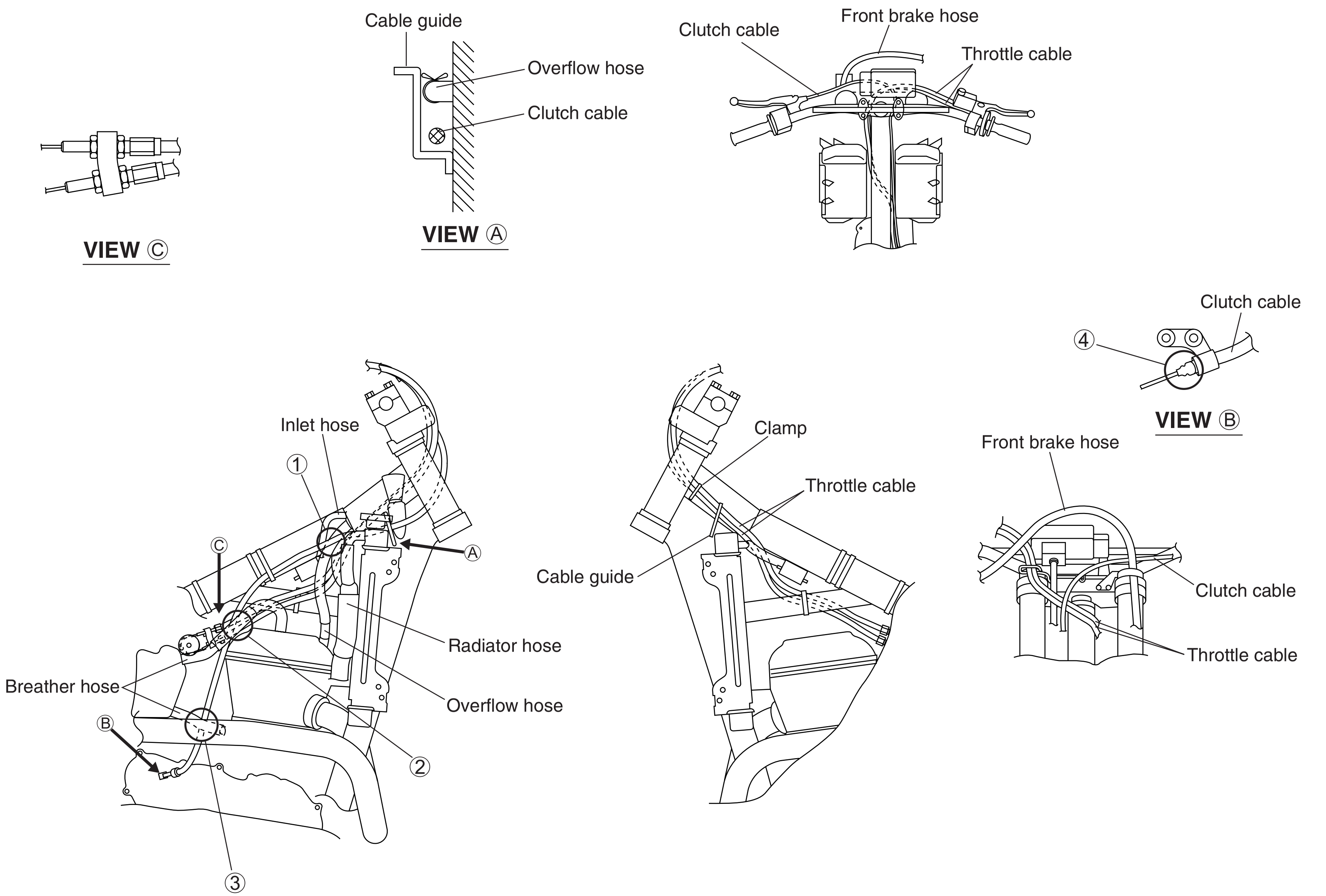
① Set ⊕ battery and ⊖ battery coupler between frame and fuse holder.
② Push the couplers into the frame.





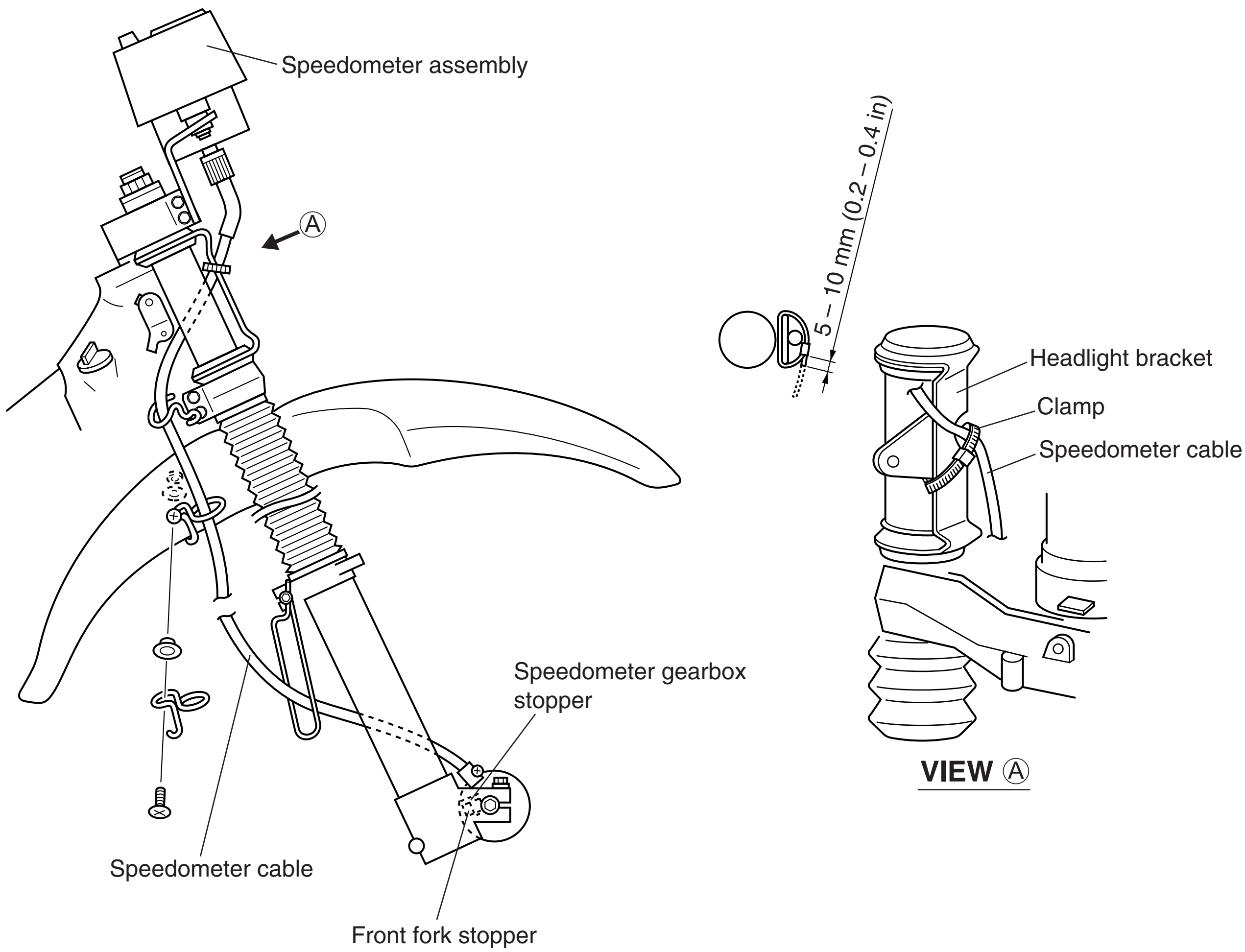
① Front turn signal light (L) lead wire must be passed over the clutch cable.
② Set the regulator/rectifier, and throttle position sensor couplers in this order, under the frame.

CABLE ROUTING

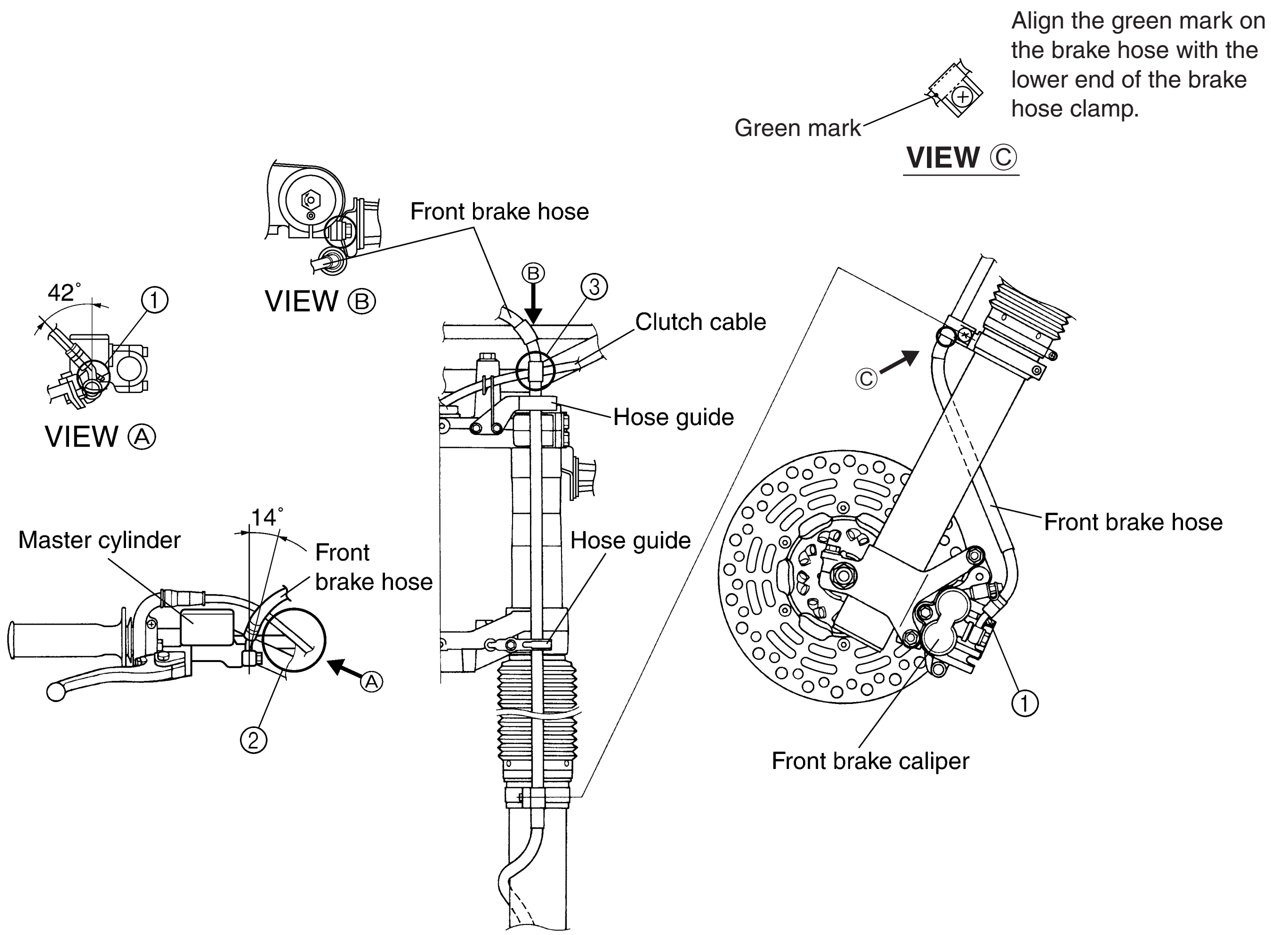


① Clutch cable must be passed outside overflow hose and inlet hose.
② Clutch cable must be passed to the right of throttle cable and left of breather hose.
③ Clutch cable must be passed to the left of breather hose.
④ Set boot to clutch cable after clutch cable setting to stopper.

SPEEDOMETER CABLE ROUTING



FRONT BRAKE HOSE ROUTING



① After touching the brake hose union to the stopper, tighten the union bolt to the specified torque.
② Set brake hose in front of throttle cables.
③ Set brake hose in front of clutch cable.

DR-Z400/EK1 ('01-MODEL)

This chapter describes specifications, service data and servicing procedures which differ from those of the DR-Z400/EY ('00-MODEL).

NOTE:
- *Any differences between DR-Z400/EY ('00-MODEL) and DR-Z400/EK1 ('01-MODEL) in specifications and service data are clearly indicated with the asterisk mark (*).*
- *Please refer to the chapter 1 through 9 for details which are not given in this chapter.*

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SPECIFICATIONS

DR-Z400/E (For E-01, 03 and 28)

DIMENSIONS AND DRY MASS

Overall length	2 235 mm (88.0 in)
Overall width	825 mm (32.5 in)
Overall height	1 245 mm (49.0 in)
Wheelbase	1 475 mm (58.1 in)
Ground clearance	325 mm (12.8 in)
Seat height	945 mm (37.2 in)
Dry mass	113 kg (249 lbs) DR-Z400
	119 kg (262 lbs) DR-Z400E

ENGINE

Type	Four-stroke, liquid-cooled, DOHC
Number of cylinders	1
Bore	90.0 mm (3.543 in)
Stroke	62.6 mm (2.465 in)
Piston displacement	398 cm^3 (24.3 cu. in)
Compression ratio	12.2 : 1
Carburetor	KEIHIN FCR39
Air cleaner	Polyurethane foam element
Starter system	Primary kick DR-Z400
	Electric DR-Z400E
Lubrication system	Dry sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction ratio	2.960 (74/25)
Final reduction ratio	3.357 (47/14)
Gear ratios, Low	2.285 (32/14)
2nd	1.733 (26/15)
3nd	1.375 (22/16)
4nd	1.090 (24/22)
Top	0.863 (19/22)
Drive chain	RK520KZO, 112 links

CHASSIS

Front suspension	Telescopic, coil spring, oil damped, rebound damping force 18-way adjustable, compression damping force 14-way adjustable
Rear suspension	Link type, coil spring, oil damped, spring preload fully adjustable, rebound damping force 21-way adjustable, compression damping force 26-way adjustable
Front suspension stroke	288 mm (11.3 in)
Rear wheel travel	295 mm (11.6 in)
Caster	27° 20'
Trail	112 mm (4.41 in)
Steering angle	45° (right & left)
Turning radius	2.2 m (7.2 ft)
Front brake	Disc brake
Rear brake	Disc brake
Front tire size	80/100-21 51M
Rear tire size	110/100-18 64M

ELECTRICAL

Ignition type	Electronic ignition (CDI)
Ignition timing	7° BTDC at 1 800 r/min
Spark plug	NGK: CR8E DENSO: U24ESR-N
Battery	* 12 V 21.6 kC (6 Ah)/10HR DR-Z400E
Generator	Three-phase A.C. generator
Fuse	10 A DR-Z400E
Headlight	12 V 55 W
Taillight	LED

CAPACITIES

Fuel tank, including reserve	10.0 L (2.6 US gal, 2.2 Imp gal)
reserve	2.3 L (0.6 US gal, 0.5 Imp gal)
Engine oil, oil change	1 700 ml (1.8 US qt, 1.5 Imp qt)
oil and filter change	1 800 ml (1.9 US qt, 1.6 Imp qt)
engine overhaul	1 900 ml (2.0 US qt, 1.7 Imp qt)
Front fork oil	720 ml (24.3 US oz, 25.4 Imp oz)
Engine coolant	1 250 ml (1.3 US qt, 1.1 Imp qt)

NOTE:
These specifications are subject to change without notice.

DR-Z400E (For E-24)

DIMENSIONS AND DRY MASS

Overall length	2 310 mm (90.9 in)
Overall width	825 mm (32.5 in)
Overall height	1 245 mm (49.0 in)
Wheelbase	1 475 mm (58.1 in)
Ground clearance	315 mm (12.4 in)
Seat height	935 mm (36.8 in)
Dry mass	127 kg (279 lbs)

ENGINE

Type	Four-stroke, liquid-cooled, DOHC
Number of cylinders	1
Bore	90.0 mm (3.543 in)
Stroke	62.6 mm (2.465 in)
Piston displacement	398 cm^3 (24.3 cu. in)
Compression ratio	12.2 : 1
Carburetor	KEIHIN FCR39
Air cleaner	Polyurethane foam element
Starter system	Electric
Lubrication system	Dry sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction ratio	2.960 (74/25)
Final reduction ratio	3.357 (47/14)
Gear ratios, Low	2.285 (32/14)
2nd	1.733 (26/15)
3rd	1.375 (22/16)
4th	1.090 (24/22)
Top	0.863 (19/22)
Drive chain	RK520KZO, 112 links

CHASSIS

Front suspension	Telescopic, coil spring, oil damped, rebound damping force 18-way adjustable, compression damping force 14-way adjustable
Rear suspension	Link type, coil spring, oil damped, spring preload fully adjustable, rebound damping force 21-way adjustable, compression damping force 26-way adjustable
Front fork stroke	288 mm (11.3 in)
Rear wheel travel	295 mm (11.6 in)
Caster	27° 20'
Trail	112 mm (4.41 in)
Steering angle	45° (right & left)
Turning radius	2.2 m (7.2 ft)
Front brake	Disc brake
Rear brake	Disc brake
Front tire size	80/100-21 51P
Rear tire size	120/90-18 65P

ELECTRICAL

Ignition type	Electronic ignition (CDI)
Ignition timing	7° BTDC at 1 800 r/min
Spark plug	NGK: CR8E DENSO: U24ESR-N
Generator	Three-phase A.C. generator
Battery *	12 V 21.6 kC (6 Ah)/10 HR
Fuse	20 A
Headlight	12 V 60/55 W
Brake light/Taillight	12 V 21/5 W
Turn signal light	12 V 21 W
Speedometer light	LED
Neutral indicator light	12 V 2 W
High beam indicator light	12 V 2 W
Turn signal indicator light	12 V 2 W

CAPACITIES

Fuel tank, including reserve	10.0 L (2.6 US gal, 2.2 Imp gal)
reserve	2.3 L (0.6 US gal, 0.5 Imp gal)
Engine oil, oil change	1 700 ml (1.8 US qt, 1.5 Imp qt)
oil and filter change	1 800 ml (1.9 US qt, 1.6 Imp qt)
engine overhaul	1 900 ml (2.0 US qt, 1.7 Imp qt)
Front fork oil	720 ml (24.3 US oz, 25.4 Imp oz)
Engine coolant	1 250 ml (1.3 US qt, 1.1 Imp qt)

NOTE:
These specifications are subject to change without notice.

SERVICE DATA

DR-Z400/E (For E-01, 03 and 28)

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	36 (1.42)	———
	EX.	29 (1.14)	———
Tappet clearance (when cold)	IN.	0.10 – 0.20 (0.0039 – 0.0078)	———
	EX.	0.20 – 0.30 (0.0078 – 0.0118)	———
Valve guide to valve stem clearance	IN.	0.010 – 0.037 (0.0004 – 0.0015)	———
	EX.	0.030 – 0.057 (0.0012 – 0.0022)	———
Valve stem deflection	IN. & EX.	———	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.000 – 5.012 (0.1969 – 0.1973)	———
Valve stem O.D.	IN.	4.975 – 4.990 (0.1959 – 0.1965)	———
	EX.	4.955 – 4.970 (0.1951 – 0.1957)	———
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve seat width	IN. & EX.	0.9 – 1.1 (0.035 – 0.043)	———
Valve head radial runout	IN. & EX.	———	0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER	———	32.6 (1.28)
	OUTER	———	36.3 (1.43)
Valve spring tension (IN. & EX.)	INNER	56 – 64 N (5.6 – 6.4 kgf, 12.3 – 14.1 lbs) at length 27.4 mm (1.08 in)	———
	OUTER	126 – 145 N (12.6 – 14.5 kgf, 27.7 – 32.0 lbs) at length 30.9 mm (1.22 in)	———

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	36.910 – 36.960 (1.4531 – 1.4551)	36.610 (1.4413)
	EX.	36.880 – 36.930 (1.4520 – 1.4539)	36.580 (1.4402)
Camshaft journal oil clearance	IN. & EX.	0.019 – 0.053 (0.0007 – 0.0021)	0.150 (0.0059)
Camshaft journal holder I.D.	IN. & EX.	22.012 – 22.025 (0.8666 – 0.8671)	———
Camshaft journal O.D.	IN. & EX.	21.972 – 21.993 (0.8653 – 0.8659)	———
Camshaft runout	———		0.10 (0.004)
Cam chain pin (at arrow "3")	15th pin		———
Cylinder head distortion	———		0.05 (0.002)
Cylinder head cover distortion	———		0.05 (0.002)
De-compression cable play (DR-Z400)	0 – 0.1 (0 – 0.004)		———

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure (Automatic de-comp. actuated) Except for DR-Z400	1 000 kPa (10.0 kgf/cm^2 142 psi)			———
Piston to cylinder clearance	0.030 – 0.040 (0.0012 – 0.0016)			0.120 (0.0047)
Cylinder bore	90.000 – 90.015 (3.5433 – 3.5439)			Nicks or Scratches
Piston diam.	89.965 – 89.980 (3.5419 – 3.5425) Measure at 15 mm (0.6 in) from the skirt end.			89.880 (3.5386)
Cylinder distortion	———			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 6.9 (0.27)	5.5 (0.22)
	2nd	R	Approx. 11.5 (0.45)	9.2 (0.36)
Piston ring end gap	1st		0.08 – 0.20 (0.003 – 0.008)	0.50 (0.020)
	2nd		0.08 – 0.20 (0.003 – 0.008)	0.50 (0.020)
Piston ring to groove clearance	1st		———	0.180 (0.007)
	2nd		———	0.150 (0.006)

ITEM	STANDARD		LIMIT
Piston ring groove width	1st	0.78 – 0.80 (0.0307 – 0.0315)	———
		1.30 – 1.32 (0.0512 – 0.0520)	———
	2nd	0.81 – 0.83 (0.0319 – 0.0327)	———
	Oil	2.01 – 2.03 (0.0791 – 0.0799)	———
Piston ring thickness	1st	0.71 – 0.76 (0.0280 – 0.0299)	———
		1.08 – 1.10 (0.0425 – 0.0433)	———
	2nd	0.77 – 0.79 (0.0303 – 0.0311)	———
Piston pin bore	20.002 – 20.008 (0.7875 – 0.7877)		20.030 (0.7886)
Piston pin O.D.	19.995 – 20.000 (0.7872 – 0.7874)		19.980 (0.7866)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	20.010 – 20.018 (0.7878 – 0.7881)	20.040 (0.7890)
Conrod deflection	———	3.0 (0.12)
Conrod big end side clearance	0.30 – 0.65 (0.012 – 0.026)	1.0 (0.04)
Conrod big end width	21.95 – 22.00 (0.864 – 0.866)	———
Crank web to web width	62.0 ± 0.1 (2.441 ± 0.004)	———
Crankshaft runout	———	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.220 (74/25 × 20/16 × 12/20)	———
Oil pressure (at 60°C, 140°F)	Above 40 kPa (0.4 kgf/cm², 5.7 psi) Below 140 kPa (1.4 kgf/cm², 19.9 psi) at 3 000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	10 – 15 (0.4 – 0.6)	———
Drive plate thickness (No. 1 & No. 2)	2.92 – 3.08 (0.115 – 0.121)	2.62 (0.103)
Drive plate claw width (No. 1 & No. 2)	13.7 – 13.8 (0.539 – 0.543)	13.2 (0.520)
Driven plate distortion	———	0.10 (0.004)
Clutch spring free length	———	49.9 (1.96)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD		LIMIT
Primary reduction ratio		2.960 (74/25)		———
Final reduction ratio		3.357 (47/14)		———
Gear ratios	Low	2.285 (32/14)		———
	2nd	1.733 (26/15)		———
	3rd	1.375 (22/16)		———
	4th	1.090 (24/22)		———
	Top	0.863 (19/22)		———
Shift fork to groove clearance		0.1 – 0.3 (0.004 – 0.012)		0.5 (0.020)
Shift fork groove width		No.1, No.2 & No.3	4.8 – 4.9 (0.189 – 0.193)	———
Shift fork thickness		No.1, No.2 & No.3	4.6 – 4.7 (0.181 – 0.185)	———
Drive chain		Type	RK520KZO	———
		Links	112	———
		20-pitch length	———	319.4 (12.57)
Drive chain slack		40 – 50 (1.6 – 2.0)		———

CARBURETOR

ITEM	SPECIFICATION			
	DR-Z400		DR-Z400E	
	E-01	E-03, 28	E-01	E-03, 28
Carburetor type	KEIHIN FCR39H	←	←	←
Bore size	39 mm (1.5 in)	←	←	←
I.D. No	29F0	29F1	29F3	29F4
Idle r/min.	1 800 ± 100 r/min	←	←	←
Float height	9.0 ± 1.0 mm (0.35 ± 0.04 in)	←	←	←

ITEM		SPECIFICATION			
		DR-Z400		DR-Z400E	
		E-01	E-03, 28	E-01	E-03, 28
Main jet	(M.J.)	#165	#142	#165	#142
Jet needle	(J.N.)	OBDXP-4th	←	←	←
Needle jet	(N.J.)	2.9 mm (0.11 in)	←	←	←
Slow jet	(S.J.)	#45	←	←	←
Slow air jet	(S.A.J.)	#60	←	←	←
Air jet	(A.J.)	#90	←	←	←
Pilot screw	(P.S.)	1½ turns back	←	←	←
Throttle cable play (pulling cable)		2 – 4 mm (0.08 – 0.16 in)	←	←	←

RADIATOR + ENGINE COOLANT

ITEM	STANDARD/SPECIFICATION	NOTE
Radiator cap valve opening pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm^2, 13.5 – 17.8 psi)	
Engine coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50 : 50.	
Engine coolant capacity	1 250 ml (1.3/1.1 US/Imp qt)	

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Rear brake pedal height	5 (0.2)		———
Brake disc thickness	Front	3.0 ± 0.2 (0.118 ± 0.008)	2.5 (0.098)
	Rear	4.5 ± 0.2 (0.177 ± 0.008)	4.0 (0.16)
Brake disc runout	———		0.30 (0.012)
Master cylinder bore	Front	11.000 – 11.043 (0.4331 – 0.4348)	———
	Rear	12.700 – 12.743 (0.5000 – 0.5017)	———
Master cylinder piston diam.	Front	10.957 – 10.984 (0.4314 – 0.4324)	———
	Rear	12.657 – 12.684 (0.4983 – 0.4994)	———

ITEM	STANDARD		LIMIT
Brake caliper cylinder bore	Front	27.000 – 27.050 (1.0630 – 1.0650)	———
	Rear	27.000 – 27.050 (1.0630 – 1.0650)	———
Brake caliper piston diam.	Front	26.900 – 26.950 (1.0591 – 1.0610)	———
	Rear	26.900 – 26.950 (1.0591 – 1.0610)	———
Brake fluid type	DOT 4		———
Wheel rim runout	Axial	———	2.0 (0.08)
	Radial	———	2.0 (0.08)
Wheel axle runout	Front	———	0.25 (0.010)
	Rear	———	0.25 (0.010)
Wheel rim size	Front	1.60 × 21	———
	Rear	2.15 × 18	———

TIRE

ITEM	STANDARD/SPECIFICATION		LIMIT
Cold inflation tire pressure (Solo riding)	Front	100 kPa (1.0 kgf/cm^2, 14 psi)	———
	Rear	100 kPa (1.0 kgf/cm^2, 14 psi)	———
Tire size	Front	80/100-21 51M	———
	Rear	110/100-18 64M	———
Tire tread depth	Front	———	4.0 mm (0.16 in)
	Rear	———	4.0 mm (0.16 in)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Front fork stroke	288 (11.3)		———
Front fork spring free length	510.6 (20.1)		500 (19.7)
Front fork oil level (without spring)	122 (4.8)		———
Front fork oil type	SUZUKI FORK OIL SS-05 or an equivalent fork oil		———
Front fork oil capacity (each leg)	720 ml (24.3/25.4 US/Imp oz)		———
Front fork damping force adjuster	Rebound	15th clicks turn back	———
	Compression	12th clicks turn back	———

ITEM	STANDARD/SPECIFICATION		LIMIT
Rear shock absorber gas pressure	900 kPa (9.0 kgf/cm², 128 psi)		———
Rear shock absorber oil type	SUZUKI REAR SUSPENSION OIL SS-25 or an equivalent suspension oil		———
Rear shock absorber oil capacity	380 ml (12.8/13.4 US/Imp oz)		———
Rear shock absorber spring pre-set length	258.0 (10.2)		———
Rear shock absorber damping force adjuster	Rebound	13th clicks turn back	———
	Compression	12th clicks turn back	———
Rear wheel travel	295 (11.6)		———
Swingarm pivot shaft runout	———		0.3 (0.01)

ELECTRICAL

ITEM		SPECIFICATION		NOTE
Spark plug		Type	DENSO: U24ESR-N NGK: CR8E	
		Gap	0.7 – 0.8 mm (0.028 – 0.031 mm)	
Spark performance		Over 8 mm (0.3 in) at 1 atm.		
Ignition coil resistance		Primary	0.1 – 1.0 Ω	Terminal – Ground
		Secondary	12 – 20 kΩ	Plug cap – Terminal
Ignition coil primary peak voltage		More than 150 V (⊕ : B/W, ⊖ : B/Y)		
Generator coil resistance		Charging	0.50 – 1.25 Ω	Y – Y
		Signal coil	0.05 – 0.20 Ω	B – W
		Pick-up coil	390 – 600 Ω	G – Bl
Pick-up coil peak voltage		More than 10.0 V (⊕ : Bl, ⊖ : G)		DR-Z400
		More than 5.0 V (⊕ : Bl, ⊖ : G)		DR-Z400E
Signal coil peak voltage		More than 1.0 V (⊕ : B, ⊖ : W)		DR-Z400
		More than 1.4 V (⊕ : B, ⊖ : W)		DR-Z400E
Generator no-load voltage (when engine is cold)		More than 55 V (AC) at 5 000 r/min. (Y – Y)		DR-Z400
		More than 75 V (AC) at 5 000 r/min. (Y – Y)		DR-Z400E
Regulated voltage		12.5 – 14.0 V at 5 000 r/min.		DR-Z400
		13.5 – 15.0 V at 5 000 r/min.		DR-Z400E
Generator Max. output		150 W at 5 000 r/min.		DR-Z400
		200 W at 5 000 r/min.		DR-Z400E
Starter relay resistance		3 – 5 Ω		DR-Z400E
Battery	Type designation	* YT7B-BS		DR-Z400E
	Capacity	* 12 V 21.6 kC (6 Ah)/10 HR		
Fuse size		10 A		DR-Z400E

WATTAGE

Unit: W

ITEM	SPECIFICATION
Headlight	55
Taillight	LED

FUEL + OIL

ITEM		SPECIFICATION		NOTE
Fuel type		Use only unleaded gasoline of at least 90 pump octane ($\frac{R+M}{2}$). Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.		E-03, 28
		Gasoline used should be graded 95 octane or higher. An unleaded gasoline is recommended.		E-01
Fuel tank including	reserve	10.0 L (2.6/2.2 US/Imp gal)		
	reserve	2.3 L (0.6/0.5 US/Imp gal)		
Engine oil type		SAE 10W/40, API SF or SG		
Engine oil capacity		Change	1 700 ml (1.8/1.5 US/Imp qt)	
		Filter change	1 800 ml (1.9/1.6 US/Imp qt)	
		Overhaul	1 900 ml (2.0/1.7 US/Imp qt)	

DR-Z400E (For E-24)

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	36 (1.42)	———
	EX.	29 (1.14)	———
Tappet clearance (when cold)	IN.	0.10 – 0.20 (0.0039 – 0.0078)	———
	EX.	0.20 – 0.30 (0.0078 – 0.0118)	———
Valve guide to valve stem clearance	IN.	0.010 – 0.037 (0.0004 – 0.0015)	———
	EX.	0.030 – 0.057 (0.0012 – 0.0022)	———
Valve stem deflection	IN. & EX.	———	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.000 – 5.012 (0.1969 – 0.1973)	———
Valve stem O.D.	IN.	4.975 – 4.990 (0.1959 – 0.1965)	———
	EX.	4.955 – 4.970 (0.1951 – 0.1957)	———
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve seat width	IN. & EX.	0.9 – 1.1 (0.035 – 0.043)	———
Valve head radial runout	IN. & EX.	———	0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER	———	32.6 (1.28)
	OUTER	———	36.3 (1.43)
Valve spring tension (IN. & EX.)	INNER	56 – 64 N (5.6 – 6.4 kgf, 12.3 – 14.1 lbs) at length 27.4 mm (1.08 in)	———
	OUTER	126 – 145 N (12.6 – 14.5 kgf, 27.7 – 32.0 lbs) at length 30.9 mm (1.22 in)	———

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	36.910 – 36.960 (1.4531 – 1.4551)	36.610 (1.4413)
	EX.	36.880 – 36.930 (1.4520 – 1.4539)	36.580 (1.4402)
Camshaft journal oil clearance	IN. & EX.	0.019 – 0.053 (0.0007 – 0.0021)	0.150 (0.0059)
Camshaft journal holder I.D.	IN. & EX.	22.012 – 22.025 (0.8666 – 0.8671)	———
Camshaft journal O.D.	IN. & EX.	21.972 – 21.993 (0.8653 – 0.8659)	———
Camshaft runout	———		0.10 (0.004)
Cam chain pin (at arrow "3")	15th pin		———
Cylinder head distortion	———		0.05 (0.002)
Cylinder head cover distortion	———		0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure (Automatic de-comp. actuated)	1 000 kPa (10.0 kgf/cm^2 142 psi)			———
Piston to cylinder clearance	0.030 – 0.040 (0.0012 – 0.0016)			0.120 (0.0047)
Cylinder bore	90.000 – 90.015 (3.5433 – 3.5439)			Nicks or Scratches
Piston diam.	89.965 – 89.980 (3.5419 – 3.5425) Measure at 15 mm (0.6 in) from the skirt end.			89.880 (3.5386)
Cylinder distortion	———			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 6.9 (0.27)	5.5 (0.22)
	2nd	R	Approx. 11.5 (0.45)	9.2 (0.36)
Piston ring end gap	1st		0.08 – 0.20 (0.003 – 0.008)	0.50 (0.020)
	2nd		0.08 – 0.20 (0.003 – 0.008)	0.50 (0.020)
Piston ring to groove clearance	1st		———	0.180 (0.007)
	2nd		———	0.150 (0.006)

ITEM	STANDARD		LIMIT
Piston ring groove width	1st	0.78 – 0.80 (0.0307 – 0.0315)	———
		1.30 – 1.32 (0.0512 – 0.0520)	———
	2nd	0.81 – 0.83 (0.0319 – 0.0327)	———
	Oil	2.01 – 2.03 (0.0791 – 0.0799)	———
Piston ring thickness	1st	0.71 – 0.76 (0.0280 – 0.0299)	———
		1.08 – 1.10 (0.0425 – 0.0433)	———
	2nd	0.77 – 0.79 (0.0303 – 0.0311)	———
Piston pin bore	20.002 – 20.008 (0.7875 – 0.7877)		20.030 (0.7886)
Piston pin O.D.	19.995 – 20.000 (0.7872 – 0.7874)		19.980 (0.7866)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	20.010 – 20.018 (0.7878 – 0.7881)	20.040 (0.7890)
Conrod deflection	———	3.0 (0.12)
Conrod big end side clearance	0.30 – 0.65 (0.012 – 0.026)	1.0 (0.04)
Conrod big end width	21.95 – 22.00 (0.864 – 0.866)	———
Crank web to web width	62.0 ± 0.1 (2.441 ± 0.004)	———
Crankshaft runout	———	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.220 (74/25 × 20/16 × 12/20)	———
Oil pressure (at 60°C, 140°F)	Above 40 kPa (0.4 kgf/cm^2, 5.7 psi) Below 140 kPa (1.4 kgf/cm^2, 19.9 psi) at 3 000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	10 – 15 (0.4 – 0.6)	———
Drive plate thickness (No. 1 & No. 2)	2.92 – 3.08 (0.115 – 0.121)	2.62 (0.103)
Drive plate claw width (No. 1 & No. 2)	13.7 – 13.8 (0.539 – 0.543)	13.2 (0.520)
Driven plate distortion	———	0.10 (0.004)
Clutch spring free length	———	49.9 (1.96)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD		LIMIT
Primary reduction ratio		2.960 (74/25)		———
Final reduction ratio		3.357 (47/14)		———
Gear ratios	Low	2.285 (32/14)		———
	2nd	1.733 (26/15)		———
	3rd	1.375 (22/16)		———
	4th	1.090 (24/22)		———
	Top	0.863 (19/22)		———
Shift fork to groove clearance		0.1 – 0.3 (0.004 – 0.012)		0.5 (0.020)
Shift fork groove width		No.1, No.2 & No.3	4.8 – 4.9 (0.189 – 0.193)	———
Shift fork thickness		No.1, No.2 & No.3	4.6 – 4.7 (0.181 – 0.185)	———
Drive chain		Type	RK520KZO	———
		Links	112	———
		20-pitch length	———	319.4 (12.57)
Drive chain slack		40 – 50 (1.6 – 2.0)		———

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		KEIHIN FCR39H
Bore size		39 mm (1.5 in)
I.D. No		29F6
Idle r/min.		1 800 ± 100 r/min
Float height		9.0 ± 1.0 mm (0.35 ± 0.04 in)
Main jet	(M.J.)	#165
Jet needle	(J.N.)	OBDXP-4th
Needle jet	(N.J.)	2.9 mm (0.11 in)

ITEM		SPECIFICATION
Slow jet	(S.J.)	#45
Slow air jet	(S.A.J.)	#60
Air jet	(A.J.)	#90
Pilot screw	(P.S.)	2¾ turns back
Throttle cable play (pulling cable)		2 – 4 mm (0.08 – 0.16 in)

RADIATOR + ENGINE COOLANT

ITEM	STANDARD/SPECIFICATION	NOTE
Radiator cap valve opening pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm^2, 13.5 – 17.8 psi)	
Engine coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50 : 50.	
Engine coolant capacity	1 250 ml (1.3/1.1 US/Imp qt)	

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Brake lever play	0.1 – 0.3 (0.004 – 0.010)		———
Rear brake pedal height	5 (0.2)		———
Brake disc thickness	Front	3.5 ± 0.2 (0.138 ± 0.008)	3.0 (0.118)
	Rear	4.5 ± 0.2 (0.177 ± 0.008)	4.0 (0.16)
Brake disc runout	———		0.30 (0.012)
Master cylinder bore	Front	12.700 – 12.743 (0.5000 – 0.5017)	———
	Rear	12.700 – 12.743 (0.5000 – 0.5017)	———
Master cylinder piston diam.	Front	12.657 – 12.684 (0.4983 – 0.4994)	———
	Rear	12.657 – 12.684 (0.4983 – 0.4994)	———
Brake caliper cylinder bore	Front	27.000 – 27.050 (1.0630 – 1.0650)	———
	Rear	27.000 – 27.050 (1.0630 – 1.0650)	———
Brake caliper piston diam.	Front	26.900 – 26.950 (1.0591 – 1.0610)	———
	Rear	26.900 – 26.950 (1.0591 – 1.0610)	———
Brake fluid type	DOT 4		———

ITEM	STANDARD		LIMIT
Wheel rim runout	Axial	———	2.0 (0.08)
	Radial	———	2.0 (0.08)
Wheel axle runout	Front	———	0.25 (0.010)
	Rear	———	0.25 (0.010)
Wheel rim size	Front	1.60 × 21	———
	Rear	2.15 × 18	———

TIRE

ITEM	STANDARD/SPECIFICATION		LIMIT
Cold inflation tire pressure (Solo riding)	Front	125 kPa (1.25 kgf/cm^2, 18 psi)	———
	Rear	125 kPa (1.25 kgf/cm^2, 18 psi)	———
Tire size	Front	80/100-21 51P	———
	Rear	120/90-18 65P	———
Tire tread depth	Front	———	4.0 mm (0.16 in)
	Rear	———	4.0 mm (0.16 in)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Front fork stroke	288 (11.3)		———
Front fork spring free length	510.6 (20.1)		500 (19.7)
Front fork oil level (without spring)	122 (4.8)		———
Front fork oil type	SUZUKI FORK OIL SS-05 or an equivalent fork oil		———
Front fork oil capacity (each leg)	720 ml (24.3/25.4 US/Imp oz)		———
Front fork damping force adjuster	Rebound	15th clicks turn back	———
	Compression	12th clicks turn back	———
Rear shock absorber gas pressure	900 kPa (9.0 kgf/cm^2, 128 psi)		———
Rear shock absorber oil type	SUZUKI REAR SUSPENSION OIL SS-25 or an equivalent suspension oil		———
Rear shock absorber oil capacity	380 ml (12.8/13.4 US/Imp oz)		———
Rear shock absorber spring pre-set length	258.0 (10.2)		———
Rear shock absorber damping force adjuster	Rebound	13th clicks turn back	———
	Compression	12th clicks turn back	———

ITEM	STANDARD/SPECIFICATION	LIMIT
Rear wheel travel	295 (11.6)	———
Swingarm pivot shaft runout	———	0.3 (0.01)

ELECTRICAL

ITEM		SPECIFICATION	NOTE
Spark plug	Type	DENSO: U24ESR-N NGK: CR8E	
	Gap	0.7 – 0.8 mm (0.028 – 0.031 mm)	
Spark performance		Over 8 mm (0.3 in) at 1 atm.	
Ignition coil resistance	Primary	0.1 – 1.0 Ω	Terminal – Ground
	Secondary	12 – 20 kΩ	Plug cap – Terminal
Ignition coil primary peak voltage		More than 150 V	⊕ : B/W, ⊖ : B/Y
Generator coil resistance	Charging	0.50 – 1.25 Ω	Y – Y
	Signal coil	0.05 – 0.20 Ω	B – W
	Pick-up coil	390 – 600 Ω	G – Bl
Pick-up coil peak voltage		More than 5.0 V	⊕ : Bl, ⊖ : G
Signal coil peak voltage		More than 1.4 V	⊕ : B, ⊖ : W
Generator no-load voltage (when engine is cold)		More than 75 V (AC) at 5 000 r/min.	Y – Y
Regulated voltage		13.5 – 15.0 V at 5 000 r/min.	
Generator Max. output		200 W at 5 000 r/min.	
Starter relay resistance		3 – 5 Ω	
Battery	Type designation	* YT7B-BS	
	Capacity	* 12 V 21.6 kC (6 Ah)/10 HR	
Fuse size		20 A	

WATTAGE

Unit: W

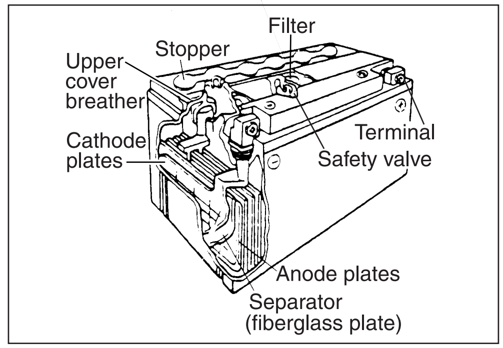
ITEM		SPECIFICATION
Headlight	HI	60
	LO	55
Brake light/Taillight		21/5
Turn signal light		21
Speedometer light		LED
Neutral indicator light		2
High beam indicator light		2
Turn signal indicator light		2

FUEL + OIL

ITEM		SPECIFICATION		NOTE
Fuel type		Gasoline used should be graded 95 octane or higher. An unleaded gasoline is recommended.		
Fuel tank including	reserve	10.0 L (2.6/2.2 US/Imp gal)		
	reserve	2.3 L (0.6/0.5 US/Imp gal)		
Engine oil type		SAE 10W/40, API SF or SG		
Engine oil capacity		Change	1 700 ml (1.8/1.5 US/Imp qt)	
		Filter change	1 800 ml (1.9/1.6 US/Imp qt)	
		Overhaul	1 900 ml (2.0/1.7 US/Imp qt)	

BATTERY (DR-Z400E)

SPECIFICATIONS

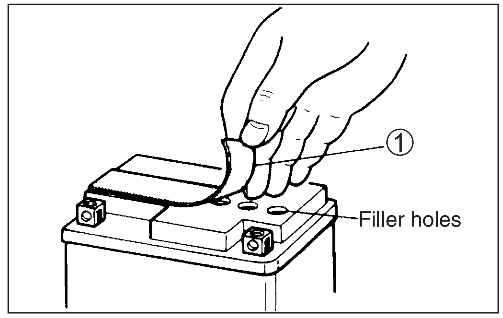


Type designation	YT7B-BS
Capacity	12V, 21.6 kC (6 Ah)/10HR

INITIAL CHARGING

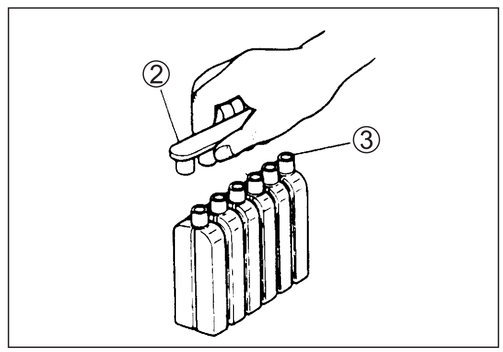
Filling electrolyte

- Remove the aluminum tape ① sealing the battery electrolyte filler holes.

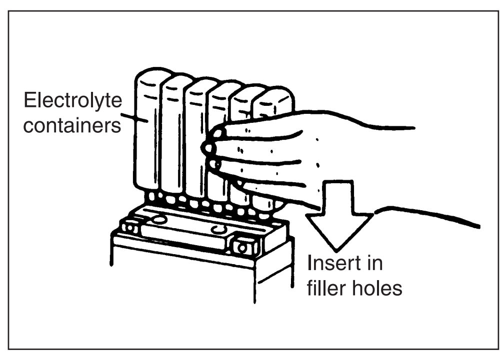


- Remove the caps ②.

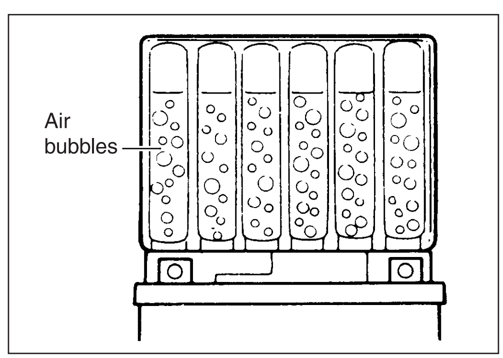
NOTE:
** After filling the electrolyte completely, use the removed cap ② as the sealed caps of battery-filler holes.*
** Do not remove or pierce the sealed areas ③ of the electrolyte container.*

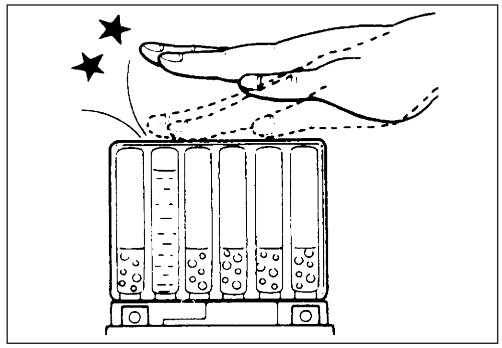


- Insert the nozzles of the electrolyte container into the battery's electrolyte filler holes, holding the container firmly so that it does not fall. Take precaution not to allow any of the fluid to spill.



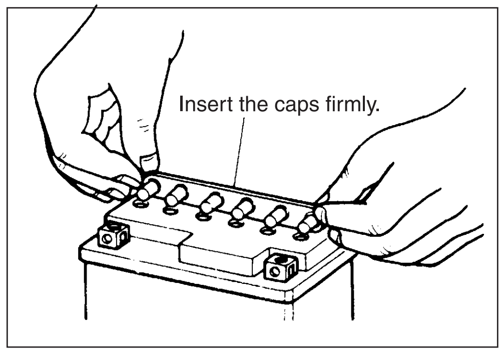
- Make sure air bubbles are coming up each electrolyte container, and leave in this position for about more than 20 minutes.





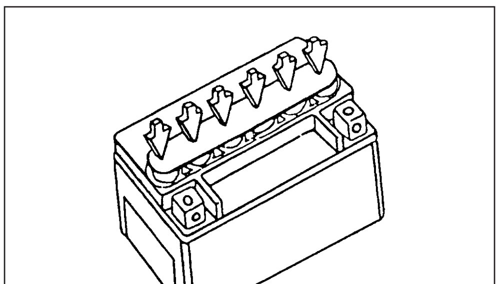
NOTE:
If no air bubbles are coming up from a filler port, tap the bottom of the electrolyte container two or three times.
Never remove the container from the battery.

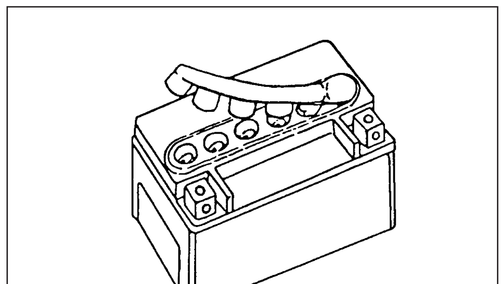
- After confirming that the electrolyte has entered the battery completely, remove the electrolyte containers from the battery. Wait for around 20 minutes.
- Insert the caps into the filler holes, pressing in firmly so that the top of the caps do not protrude above the upper surface of the battery's top cover.



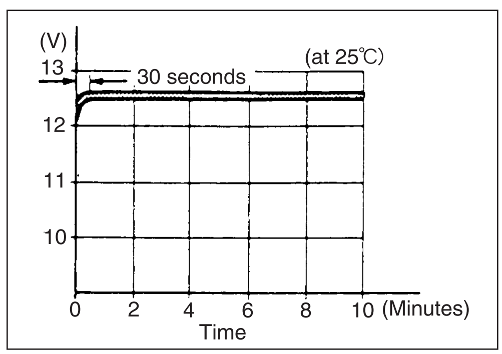
CAUTION

- *** Never use anything except the specified battery.**
- *** Once install the caps to the battery; do not remove the caps.**
- *** Do not tap the caps with a hammer when installing them.**


CORRECT


INCORRECT

- Using multi circuit tester, measure the battery voltage. The tester should indicate more than 12.5 – 12.6 V (DC) as shown in the Fig. If the battery voltage is lower than the specification, charge the battery with a battery charger. (Refer to the recharging operation)



CAUTION

Do not remove the caps on the battery top while charging.

NOTE:
Initial charging for a new battery is recommended if two years have elapsed since the date of manufacture.

SERVICING

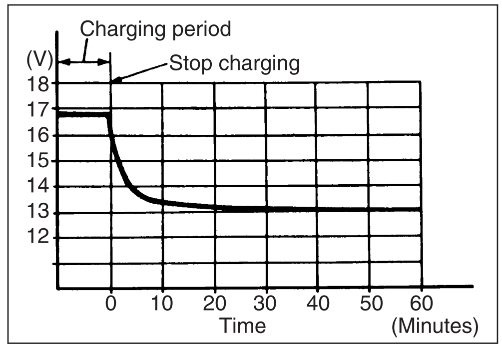
Visually inspect the surface of the battery container. If any signs of cracking or electrolyte leakage from the sides of the battery have occurred, replace the battery with a new one. If the battery terminals are found to be coated with rust or an acidic white powdery substance, then this can be cleaned away with sandpaper.

RECHARGING OPERATION

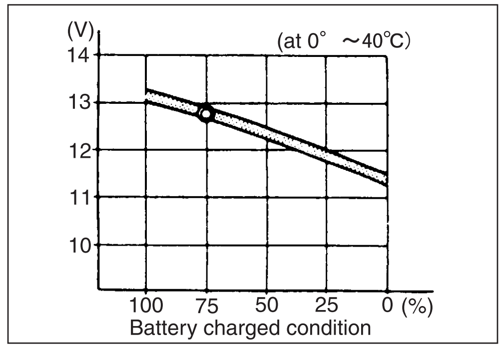
- Using the multi circuit tester, check the battery voltage. If the voltage reading is less than the 12.0 V (DC), recharge the battery with a battery charger.

CAUTION

- * **When recharging the battery, remove the battery from the motorcycle.**
- * **Do not remove the caps on the battery top while recharging.**



Recharging time: 0.7 A for 5 to 10 hours or 3 A for one hour



CAUTION

Be careful not to permit the charging current to exceed 3 A at any time.

- After recharging, wait for more than 30 minutes and check the battery voltage with a multi circuit tester.
- If the battery voltage is less than the 12.5 V, recharge the battery again.
- If battery voltage is still less than 12.5 V, after recharging, replace the battery with a new one.
- When the motorcycle is not used for a long period, check the battery every 1 month to prevent the battery discharge.

DR-Z400/EK2 ('02-MODEL)

This chapter describes specifications, service data and servicing procedures which differ from those of DR-Z400/EK1 ('01-MODEL).

NOTE:
* *Any difference between DR-Z400/EK1 ('01-MODEL) and DR-Z400/EK2 ('02-MODEL) in specifications and service data are cleary indicated with the asterisk mark (*).*
* *Please refer to the chapter 1 through 10 for details which are not given in this chapter.*

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SPECIFICATIONS

DR-Z400/E (For E-01, 03 and 28)

DIMENSIONS AND DRY MASS

Overall length	2 235 mm (88.0 in)
Overall width	825 mm (32.5 in)
Overall height	1 235 mm (48.6 in)
Wheelbase	1 475 mm (58.1 in)
Ground clearance	325 mm (12.8 in)
Seat height	945 mm (37.2 in)
Dry mass	113 kg (249 lbs) DR-Z400
	119 kg (262 lbs) DR-Z400E

ENGINE

Type	Four-stroke, liquid-cooled, DOHC
Number of cylinders	1
Bore	90.0 mm (3.543 in)
Stroke	62.6 mm (2.465 in)
Piston displacement	398 cm^3 (24.3 cu. in)
Compression ratio	12.2 : 1
Carburetor	KEIHIN FCR39
Air cleaner	Polyurethane foam element
Starter system	Primary kick DR-Z400
	Electric DR-Z400E
Lubrication system	Dry sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction ratio	2.960 (74/25)
Final reduction ratio	3.357 (47/14)
Gear ratios, Low	2.285 (32/14)
2nd	1.733 (26/15)
3nd	1.375 (22/16)
4nd	1.090 (24/22)
Top	0.863 (19/22)
Drive chain	RK520KZO, 112 links

CHASSIS

Front suspension	Telescopic, coil spring, oil damped
Rear suspension	Link type, coil spring, oil damped
Front suspension stroke	288 mm (11.3 in)
Rear wheel travel	295 mm (11.6 in)
Caster	27° 20'
Trail	112 mm (4.41 in)
Steering angle	45° (right & left)
Turning radius	2.2 m (7.2 ft)
Front brake	Disc brake
Rear brake	Disc brake
Front tire size	80/100-21 51M
Rear tire size	110/100-18 64M

ELECTRICAL

Ignition type	Electronic ignition (CDI)
Ignition timing	7° BTDC at 1 800 r/min
Spark plug	NGK: CR8E DENSO: U24ESR-N
Battery	12 V 21.6 kC (6 Ah)/10HR DR-Z400E
Generator	Three-phase A.C. generator
Fuse	10 A DR-Z400E
Headlight *	12 V 35 W
Taillight	LED

CAPACITIES

Fuel tank, including reserve	10.0 L (2.6 US gal, 2.2 Imp gal)
reserve	2.3 L (0.6 US gal, 0.5 Imp gal)
Engine oil, oil change	1 700 ml (1.8 US qt, 1.5 Imp qt)
oil and filter change	1 800 ml (1.9 US qt, 1.6 Imp qt)
engine overhaul	1 900 ml (2.0 US qt, 1.7 Imp qt)
Front fork oil	720 ml (24.3 US oz, 25.4 Imp oz)
Engine coolant	1 250 ml (1.3 US qt, 1.1 Imp qt)

NOTE:
These specifications are subject to change without notice.

DR-Z400E (For E-24)

DIMENSIONS AND DRY MASS

Overall length	2 310 mm (90.9 in)
Overall width	825 mm (32.5 in)
Overall height	1 235 mm (48.6 in)
Wheelbase	1 475 mm (58.1 in)
Ground clearance	315 mm (12.4 in)
Seat height	935 mm (36.8 in)
Dry mass	127 kg (279 lbs)

ENGINE

Type	Four-stroke, liquid-cooled, DOHC
Number of cylinders	1
Bore	90.0 mm (3.543 in)
Stroke	62.6 mm (2.465 in)
Piston displacement	398 cm^3 (24.3 cu. in)
Compression ratio	12.2 : 1
Carburetor	KEIHIN FCR39
Air cleaner	Polyurethane foam element
Starter system	Electric
Lubrication system	Dry sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction ratio	2.960 (74/25)
Final reduction ratio	3.357 (47/14)
Gear ratios, Low	2.285 (32/14)
2nd	1.733 (26/15)
3rd	1.375 (22/16)
4th	1.090 (24/22)
Top	0.863 (19/22)
Drive chain	RK520KZO, 112 links

CHASSIS

Front suspension	Telescopic, coil spring, oil damped
Rear suspension	Link type, coil spring, oil damped
Front fork stroke	288 mm (11.3 in)
Rear wheel travel	295 mm (11.6 in)
Caster	27° 20'
Trail	112 mm (4.41 in)
Steering angle	45° (right & left)
Turning radius	2.2 m (7.2 ft)
Front brake	Disc brake
Rear brake	Disc brake
Front tire size	80/100-21 51P or 80/100-21 M/C 51P
Rear tire size	120/90-18 65P or 120/90-18 M/C 65P

ELECTRICAL

Ignition type	Electronic ignition (CDI)
Ignition timing	7° BTDC at 1 800 r/min
Spark plug	NGK: CR8E DENSO: U24ESR-N
Generator	Three-phase A.C. generator
Battery	12 V 21.6 kC (6 Ah)/10 HR
Fuse	20 A
Headlight	12 V 60/55 W
Brake light/Taillight	12 V 21/5 W
Turn signal light	12 V 21 W
Speedometer light	LED
Neutral indicator light	12 V 2 W
High beam indicator light	12 V 2 W
Turn signal indicator light	12 V 2 W

CAPACITIES

Fuel tank, including reserve	10.0 L (2.6 US gal, 2.2 Imp gal)
reserve	2.3 L (0.6 US gal, 0.5 Imp gal)
Engine oil, oil change	1 700 ml (1.8 US qt, 1.5 Imp qt)
oil and filter change	1 800 ml (1.9 US qt, 1.6 Imp qt)
engine overhaul	1 900 ml (2.0 US qt, 1.7 Imp qt)
Front fork oil	720 ml (24.3 US oz, 25.4 Imp oz)
Engine coolant	1 250 ml (1.3 US qt, 1.1 Imp qt)

NOTE:
These specifications are subject to change without notice.

PERIODIC MAINTENANCE SCHEDULE (FOR E-24)

The chart below lists the recommended intervals for all the required periodic service work necessary to keep the motorcycle operating at peak performance and economy. Maintenance intervals are expressed in terms of kilometers, miles and months, and are dependent on whichever comes first.

NOTE:
More frequent servicing may be performed on motorcycles that are used under severe conditions.

PERIODIC MAINTENANCE CHART

Item \ Interval						
	km	1 000	6 000	12 000	18 000	24 000
	miles	600	4 000	7 500	11 000	15 000
	months	1	6	12	18	24
Air cleaner element		–	I	I	R	I
		Inspect each time the motorcycles is ridden in off-road and clean as necessary				
Exhaust pipe bolts and muffler bolts		T	–	T	–	T
Valve clearance		–	–	–	–	I
Spark plugs		–	I	R	I	R
Fuel hose		–	I	I	I	I
		Replace every 4 years.				
Engine oil		R	R	R	R	R
Engine oil filter		R	–	–	R	–
Idle speed		I	I	I	I	I
Throttle cable play		I	I	I	I	I
Engine coolant		Replace every 2 years.				
Radiator hose		–	I	I	I	I
Clutch		–	I	I	I	I
Drive chain		I	I	I	I	I
		Clean, lubricate and inspect each time the motorcycle is ridden in off-road				
Brakes		I	I	I	I	I
Brake hose		–	I	I	I	I
		Replace every 4 years.				
Brake fluid		–	I	I	I	I
		Replace every 2 years.				
Tires		–	I	I	I	I
		Inspect each time the motorcycle is ridden in off-road				
Spoke nipples		I	I	I	I	I
		Inspect each time the motorcycle is ridden in off-road				
Steering		I	–	I	–	I
Front forks		–	–	I	–	I
Rear suspension		–	–	I	–	I
Chassis bolts and nuts		T	T	T	T	T

I = Inspect and adjust, clean, lubricate, or replace as necessary.
R = Replace
T = Tighten
C = Clean

NOTE:
If the motorcycle is often ridden in the off-road, perform the above maintenance at the half interval.

SERVICE DATA

DR-Z400/E (For E-01, 03 and 28)

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	36 (1.42)	———
	EX.	29 (1.14)	———
Tappet clearance (when cold)	IN.	0.10 – 0.20 (0.0039 – 0.0078)	———
	EX.	0.20 – 0.30 (0.0078 – 0.0118)	———
Valve guide to valve stem clearance	IN.	0.010 – 0.037 (0.0004 – 0.0015)	———
	EX.	0.030 – 0.057 (0.0012 – 0.0022)	———
Valve stem deflection	IN. & EX.	———	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.000 – 5.012 (0.1969 – 0.1973)	———
Valve stem O.D.	IN.	4.975 – 4.990 (0.1959 – 0.1965)	———
	EX.	4.955 – 4.970 (0.1951 – 0.1957)	———
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve seat width	IN. & EX.	0.9 – 1.1 (0.035 – 0.043)	———
Valve head radial runout	IN. & EX.	———	0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER	———	32.6 (1.28)
	OUTER	———	36.3 (1.43)
Valve spring tension (IN. & EX.)	INNER	56 – 64 N (5.6 – 6.4 kgf, 12.3 – 14.1 lbs) at length 27.4 mm (1.08 in)	———
	OUTER	126 – 145 N (12.6 – 14.5 kgf, 27.7 – 32.0 lbs) at length 30.9 mm (1.22 in)	———

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	36.910 – 36.960 (1.4531 – 1.4551)	36.610 (1.4413)
	EX.	36.880 – 36.930 (1.4520 – 1.4539)	36.580 (1.4402)
Camshaft journal oil clearance	IN. & EX.	0.019 – 0.053 (0.0007 – 0.0021)	0.150 (0.0059)
Camshaft journal holder I.D.	IN. & EX.	22.012 – 22.025 (0.8666 – 0.8671)	———
Camshaft journal O.D.	IN. & EX.	21.972 – 21.993 (0.8653 – 0.8659)	———
Camshaft runout	———		0.10 (0.004)
Cam chain pin (at arrow "3")	15th pin		———
Cylinder head distortion	———		0.05 (0.002)
Cylinder head cover distortion	———		0.05 (0.002)
De-compression cable play (DR-Z400)	0 – 0.1 (0 – 0.004)		———

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure (Automatic de-comp. actuated) Except for DR-Z400	1 000 kPa (10.0 kgf/cm², 142 psi)			———
Piston to cylinder clearance	0.030 – 0.040 (0.0012 – 0.0016)			0.120 (0.0047)
Cylinder bore	90.000 – 90.015 (3.5433 – 3.5439)			Nicks or Scratches
Piston diam.	89.965 – 89.980 (3.5419 – 3.5425) Measure at 15 mm (0.6 in) from the skirt end.			89.880 (3.5386)
Cylinder distortion	———			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 6.9 (0.27)	5.5 (0.22)
	2nd	R	Approx. 11.5 (0.45)	9.2 (0.36)
Piston ring end gap	1st		0.08 – 0.20 (0.003 – 0.008)	0.50 (0.020)
	2nd		0.08 – 0.20 (0.003 – 0.008)	0.50 (0.020)
Piston ring to groove clearance	1st		———	0.180 (0.007)
	2nd		———	0.150 (0.006)

ITEM	STANDARD		LIMIT
Piston ring groove width	1st	0.78 – 0.80 (0.0307 – 0.0315)	———
		1.30 – 1.32 (0.0512 – 0.0520)	———
	2nd	0.81 – 0.83 (0.0319 – 0.0327)	———
	Oil	2.01 – 2.03 (0.0791 – 0.0799)	———
Piston ring thickness	1st	0.71 – 0.76 (0.0280 – 0.0299)	———
		1.08 – 1.10 (0.0425 – 0.0433)	———
	2nd	0.77 – 0.79 (0.0303 – 0.0311)	———
Piston pin bore	20.002 – 20.008 (0.7875 – 0.7877)		20.030 (0.7886)
Piston pin O.D.	19.995 – 20.000 (0.7872 – 0.7874)		19.980 (0.7866)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	20.010 – 20.018 (0.7878 – 0.7881)	20.040 (0.7890)
Conrod deflection	———	3.0 (0.12)
Conrod big end side clearance	0.30 – 0.65 (0.012 – 0.026)	1.0 (0.04)
Conrod big end width	21.95 – 22.00 (0.864 – 0.866)	———
Crank web to web width	62.0 ± 0.1 (2.441 ± 0.004)	———
Crankshaft runout	———	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.220 (74/25 × 20/16 × 12/20)	———
Oil pressure (at 60°C, 140°F)	Above 40 kPa (0.4 kgf/cm^2, 5.7 psi) Below 140 kPa (1.4 kgf/cm^2, 19.9 psi) at 3 000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	10 – 15 (0.4 – 0.6)	———
Drive plate thickness (No. 1 & No. 2)	2.92 – 3.08 (0.115 – 0.121)	2.62 (0.103)
Drive plate claw width (No. 1 & No. 2)	13.7 – 13.8 (0.539 – 0.543)	13.2 (0.520)
Driven plate distortion	———	0.10 (0.004)
Clutch spring free length	———	49.9 (1.96)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD		LIMIT
Primary reduction ratio		2.960 (74/25)		———
Final reduction ratio		3.357 (47/14)		———
Gear ratios	Low	2.285 (32/14)		———
	2nd	1.733 (26/15)		———
	3rd	1.375 (22/16)		———
	4th	1.090 (24/22)		———
	Top	0.863 (19/22)		———
Shift fork to groove clearance		0.1 – 0.3 (0.004 – 0.012)		0.5 (0.020)
Shift fork groove width		No.1, No.2 & No.3	4.8 – 4.9 (0.189 – 0.193)	———
Shift fork thickness		No.1, No.2 & No.3	4.6 – 4.7 (0.181 – 0.185)	———
Drive chain		Type	RK520KZO	———
		Links	112	———
		20-pitch length	———	319.4 (12.57)
Drive chain slack		40 – 50 (1.6 – 2.0)		———

CARBURETOR

ITEM	SPECIFICATION			
	DR-Z400		DR-Z400E	
	E-01	E-03, 28	E-01	E-03, 28
Carburetor type	KEIHIN FCR39H	←	←	←
Bore size	39 mm (1.5 in)	←	←	←
I.D. No	29F0	29F1	29F3	29F4
Idle r/min.	1 800 ± 100 r/min	←	←	←
Float height	9.0 ± 1.0 mm (0.35 ± 0.04 in)	←	←	←

ITEM		SPECIFICATION			
		DR-Z400		DR-Z400E	
		E-01	E-03, 28	E-01	E-03, 28
Main jet	(M.J.)	#165	#142	#165	#142
Jet needle	(J.N.)	OBDXP-4th	←	←	←
Needle jet	(N.J.)	2.9 mm (0.11 in)	←	←	←
Slow jet	(S.J.)	#45	←	←	←
Slow air jet	(S.A.J.)	#60	←	←	←
Air jet	(A.J.)	#90	←	←	←
Pilot screw	(P.S.)	1½ turns back	←	←	←
Throttle cable play (pulling cable)		2 – 4 mm (0.08 – 0.16 in)	←	←	←

RADIATOR + ENGINE COOLANT

ITEM	STANDARD/SPECIFICATION	NOTE
Radiator cap valve opening pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm^2, 13.5 – 17.8 psi)	
Engine coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50 : 50.	
Engine coolant capacity	1 250 ml (1.3/1.1 US/Imp qt)	

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Rear brake pedal height	5 (0.2)		———
Brake disc thickness	Front	3.0 ± 0.2 (0.118 ± 0.008)	2.5 (0.098)
	Rear	4.5 ± 0.2 (0.177 ± 0.008)	4.0 (0.16)
Brake disc runout	———		0.30 (0.012)
Master cylinder bore	Front	11.000 – 11.043 (0.4331 – 0.4348)	———
	Rear	12.700 – 12.743 (0.5000 – 0.5017)	———
Master cylinder piston diam.	Front	10.957 – 10.984 (0.4314 – 0.4324)	———
	Rear	12.657 – 12.684 (0.4983 – 0.4994)	———

ITEM	STANDARD		LIMIT
Brake caliper cylinder bore	Front	27.000 – 27.050 (1.0630 – 1.0650)	———
	Rear	27.000 – 27.050 (1.0630 – 1.0650)	———
Brake caliper piston diam.	Front	26.900 – 26.950 (1.0591 – 1.0610)	———
	Rear	26.900 – 26.950 (1.0591 – 1.0610)	———
Brake fluid type	DOT 4		———
Wheel rim runout	Axial	———	2.0 (0.08)
	Radial	———	2.0 (0.08)
Wheel axle runout	Front	———	0.25 (0.010)
	Rear	———	0.25 (0.010)
Wheel rim size	Front	1.60 × 21	———
	Rear	2.15 × 18	———

TIRE

ITEM	STANDARD/SPECIFICATION		LIMIT
Cold inflation tire pressure (Solo riding)	Front	100 kPa (1.0 kgf/cm^2, 14 psi)	———
	Rear	100 kPa (1.0 kgf/cm^2, 14 psi)	———
Tire size	Front	80/100-21 51M	———
	Rear	110/100-18 64M	———
Tire tread depth	Front	———	4.0 mm (0.16 in)
	Rear	———	4.0 mm (0.16 in)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Front fork stroke	288 (11.3)		———
Front fork spring free length	510.6 (20.1)		500 (19.7)
Front fork oil level (without spring)	122 (4.8)		———
Front fork oil type	SUZUKI FORK OIL SS-05 or an equivalent fork oil		———
Front fork oil capacity (each leg)	720 ml (24.3/25.4 US/Imp oz)		———
Front fork damping force adjuster	Rebound	15th clicks turn back	———
	Compression	12th clicks turn back	———

ITEM	STANDARD/SPECIFICATION			LIMIT
Rear shock absorber gas pressure	900 kPa (9.0 kgf/cm², 128 psi)			———
Rear shock absorber oil type	SUZUKI REAR SUSPENSION OIL SS-25 or an equivalent suspension oil			———
Rear shock absorber oil capacity	380 ml (12.8/13.4 US/Imp oz)			———
Rear shock absorber spring pre-set length	258.0 (10.2)			———
Rear shock absorber damping force adjuster	Rebound	13th clicks turn back		———
	Compression	*High speed	1¼ turns out	———
		*Low speed	10th clicks turn back	———
Rear wheel travel	295 (11.6)			———
Swingarm pivot shaft runout	———			0.3 (0.01)

ELECTRICAL

ITEM		SPECIFICATION		NOTE
Spark plug		Type	DENSO: U24ESR-N NGK: CR8E	
		Gap	0.7 – 0.8 mm (0.028 – 0.031 mm)	
Spark performance		Over 8 mm (0.3 in) at 1 atm.		
Ignition coil resistance		Primary	0.1 – 1.0 Ω	Terminal – Ground
		Secondary	12 – 20 kΩ	Plug cap – Terminal
Ignition coil primary peak voltage		More than 150 V (⊕ : B/W, ⊖ : B/Y)		
Generator coil resistance		Charging	0.50 – 1.25 Ω	Y – Y
		Signal coil	0.05 – 0.20 Ω	B – W
		Pick-up coil	390 – 600 Ω	G – Bl
Pick-up coil peak voltage		More than 10.0 V (⊕ : Bl, ⊖ : G)		DR-Z400
		More than 5.0 V (⊕ : Bl, ⊖ : G)		DR-Z400E
Signal coil peak voltage		More than 1.0 V (⊕ : B, ⊖ : W)		DR-Z400
		More than 1.4 V (⊕ : B, ⊖ : W)		DR-Z400E
Generator no-load voltage (when engine is cold)		More than 55 V (AC) at 5 000 r/min. (Y – Y)		DR-Z400
		More than 75 V (AC) at 5 000 r/min. (Y – Y)		DR-Z400E
Regulated voltage		12.5 – 14.0 V at 5 000 r/min.		DR-Z400
		13.5 – 15.0 V at 5 000 r/min.		DR-Z400E
Generator Max. output		150 W at 5 000 r/min.		DR-Z400
		200 W at 5 000 r/min.		DR-Z400E
Starter relay resistance		3 – 5 Ω		DR-Z400E
Battery	Type designation	YT7B-BS		DR-Z400E
	Capacity	12 V 21.6 kC (6 Ah)/10 HR		

WATTAGE

Unit: W

ITEM	SPECIFICATION
Headlight	*35
Taillight	LED

FUEL + OIL

ITEM		SPECIFICATION		NOTE
Fuel type		Use only unleaded gasoline of at least 90 pump octane ($\frac{R+M}{2}$). Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.		E-03, 28
		Gasoline used should be graded 95 octane or higher. An unleaded gasoline is recommended.		E-01
Fuel tank including	reserve	10.0 L (2.6/2.2 US/lmp gal)		
	reserve	2.3 L (0.6/0.5 US/lmp gal)		
Engine oil type		SAE 10W/40, API SF or SG		
Engine oil capacity		Change	1 700 ml (1.8/1.5 US/lmp qt)	
		Filter change	1 800 ml (1.9/1.6 US/lmp qt)	
		Overhaul	1 900 ml (2.0/1.7 US/lmp qt)	

DR-Z400E (For E-24)

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	36 (1.42)	———
	EX.	29 (1.14)	———
Tappet clearance (when cold)	IN.	0.10 – 0.20 (0.0039 – 0.0078)	———
	EX.	0.20 – 0.30 (0.0078 – 0.0118)	———
Valve guide to valve stem clearance	IN.	0.010 – 0.037 (0.0004 – 0.0015)	———
	EX.	0.030 – 0.057 (0.0012 – 0.0022)	———
Valve stem deflection	IN. & EX.	———	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.000 – 5.012 (0.1969 – 0.1973)	———
Valve stem O.D.	IN.	4.975 – 4.990 (0.1959 – 0.1965)	———
	EX.	4.955 – 4.970 (0.1951 – 0.1957)	———
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve seat width	IN. & EX.	0.9 – 1.1 (0.035 – 0.043)	———
Valve head radial runout	IN. & EX.	———	0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER	———	32.6 (1.28)
	OUTER	———	36.3 (1.43)
Valve spring tension (IN. & EX.)	INNER	56 – 64 N (5.6 – 6.4 kgf, 12.3 – 14.1 lbs) at length 27.4 mm (1.08 in)	———
	OUTER	126 – 145 N (12.6 – 14.5 kgf, 27.7 – 32.0 lbs) at length 30.9 mm (1.22 in)	———

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	36.910 – 36.960 (1.4531 – 1.4551)	36.610 (1.4413)
	EX.	36.880 – 36.930 (1.4520 – 1.4539)	36.580 (1.4402)
Camshaft journal oil clearance	IN. & EX.	0.019 – 0.053 (0.0007 – 0.0021)	0.150 (0.0059)
Camshaft journal holder I.D.	IN. & EX.	22.012 – 22.025 (0.8666 – 0.8671)	———
Camshaft journal O.D.	IN. & EX.	21.972 – 21.993 (0.8653 – 0.8659)	———
Camshaft runout	———		0.10 (0.004)
Cam chain pin (at arrow "3")	15th pin		———
Cylinder head distortion	———		0.05 (0.002)
Cylinder head cover distortion	———		0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure (Automatic de-comp. actuated)	1 000 kPa ($10.0\ kgf/cm^2$, 142 psi)			———
Piston to cylinder clearance	0.030 – 0.040 (0.0012 – 0.0016)			0.120 (0.0047)
Cylinder bore	90.000 – 90.015 (3.5433 – 3.5439)			Nicks or Scratches
Piston diam.	89.965 – 89.980 (3.5419 – 3.5425) Measure at 15 mm (0.6 in) from the skirt end.			89.880 (3.5386)
Cylinder distortion	———			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 6.9 (0.27)	5.5 (0.22)
	2nd	R	Approx. 11.5 (0.45)	9.2 (0.36)
Piston ring end gap	1st		0.08 – 0.20 (0.003 – 0.008)	0.50 (0.020)
	2nd		0.08 – 0.20 (0.003 – 0.008)	0.50 (0.020)
Piston ring to groove clearance	1st		———	0.180 (0.007)
	2nd		———	0.150 (0.006)

ITEM		STANDARD	LIMIT
Piston ring groove width	1st	0.78 – 0.80 (0.0307 – 0.0315)	———
		1.30 – 1.32 (0.0512 – 0.0520)	———
	2nd	0.81 – 0.83 (0.0319 – 0.0327)	———
	Oil	2.01 – 2.03 (0.0791 – 0.0799)	———
Piston ring thickness	1st	0.71 – 0.76 (0.0280 – 0.0299)	———
		1.08 – 1.10 (0.0425 – 0.0433)	———
	2nd	0.77 – 0.79 (0.0303 – 0.0311)	———
Piston pin bore	20.002 – 20.008 (0.7875 – 0.7877)		20.030 (0.7886)
Piston pin O.D.	19.995 – 20.000 (0.7872 – 0.7874)		19.980 (0.7866)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	20.010 – 20.018 (0.7878 – 0.7881)	20.040 (0.7890)
Conrod deflection	———	3.0 (0.12)
Conrod big end side clearance	0.30 – 0.65 (0.012 – 0.026)	1.0 (0.04)
Conrod big end width	21.95 – 22.00 (0.864 – 0.866)	———
Crank web to web width	62.0 ± 0.1 (2.441 ± 0.004)	———
Crankshaft runout	———	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.220 (74/25 × 20/16 × 12/20)	———
Oil pressure (at 60°C, 140°F)	Above 40 kPa (0.4 kgf/cm^2, 5.7 psi) Below 140 kPa (1.4 kgf/cm^2, 19.9 psi) at 3 000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	10 – 15 (0.4 – 0.6)	———
Drive plate thickness (No. 1 & No. 2)	2.92 – 3.08 (0.115 – 0.121)	2.62 (0.103)
Drive plate claw width (No. 1 & No. 2)	13.7 – 13.8 (0.539 – 0.543)	13.2 (0.520)
Driven plate distortion	———	0.10 (0.004)
Clutch spring free length	———	49.9 (1.96)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD		LIMIT
Primary reduction ratio		2.960 (74/25)		———
Final reduction ratio		3.357 (47/14)		———
Gear ratios	Low	2.285 (32/14)		———
	2nd	1.733 (26/15)		———
	3rd	1.375 (22/16)		———
	4th	1.090 (24/22)		———
	Top	0.863 (19/22)		———
Shift fork to groove clearance		0.1 – 0.3 (0.004 – 0.012)		0.5 (0.020)
Shift fork groove width		No.1, No.2 & No.3	4.8 – 4.9 (0.189 – 0.193)	———
Shift fork thickness		No.1, No.2 & No.3	4.6 – 4.7 (0.181 – 0.185)	———
Drive chain		Type	RK520KZO	———
		Links	112	———
		20-pitch length	———	319.4 (12.57)
Drive chain slack		40 – 50 (1.6 – 2.0)		———

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		KEIHIN FCR39H
Bore size		39 mm (1.5 in)
I.D. No		29F6
Idle r/min.		1 800 ± 100 r/min
Float height		9.0 ± 1.0 mm (0.35 ± 0.04 in)
Main jet	(M.J.)	#165
Jet needle	(J.N.)	OBDXP-4th
Needle jet	(N.J.)	2.9 mm (0.11 in)

ITEM		SPECIFICATION
Slow jet	(S.J.)	#45
Slow air jet	(S.A.J.)	#60
Air jet	(A.J.)	#90
Pilot screw	(P.S.)	2¾ turns back
Throttle cable play (pulling cable)		2 – 4 mm (0.08 – 0.16 in)

RADIATOR + ENGINE COOLANT

ITEM	STANDARD/SPECIFICATION	NOTE
Radiator cap valve opening pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm^2, 13.5 – 17.8 psi)	
Engine coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50 : 50.	
Engine coolant capacity	1 250 ml (1.3/1.1 US/Imp qt)	

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Brake lever play	0.1 – 0.3 (0.004 – 0.010)		———
Rear brake pedal height	5 (0.2)		———
Brake disc thickness	Front	3.0 ± 0.2 (0.118 ± 0.008)	2.5 (0.098)
	Rear	4.5 ± 0.2 (0.177 ± 0.008)	4.0 (0.16)
Brake disc runout	———		0.30 (0.012)
Master cylinder bore	Front	12.700 – 12.743 (0.5000 – 0.5017)	———
	Rear	12.700 – 12.743 (0.5000 – 0.5017)	———
Master cylinder piston diam.	Front	12.657 – 12.684 (0.4983 – 0.4994)	———
	Rear	12.657 – 12.684 (0.4983 – 0.4994)	———
Brake caliper cylinder bore	Front	27.000 – 27.050 (1.0630 – 1.0650)	———
	Rear	27.000 – 27.050 (1.0630 – 1.0650)	———
Brake caliper piston diam.	Front	26.900 – 26.950 (1.0591 – 1.0610)	———
	Rear	26.900 – 26.950 (1.0591 – 1.0610)	———
Brake fluid type	DOT 4		———

ITEM	STANDARD		LIMIT
Wheel rim runout	Axial	———	2.0 (0.08)
	Radial	———	2.0 (0.08)
Wheel axle runout	Front	———	0.25 (0.010)
	Rear	———	0.25 (0.010)
Wheel rim size	Front	1.60 × 21	———
	Rear	2.15 × 18	———

TIRE

ITEM	STANDARD/SPECIFICATION		LIMIT
Cold inflation tire pressure (Solo riding)	Front	125 kPa (1.25 kgf/cm², 18 psi)	———
	Rear	125 kPa (1.25 kgf/cm², 18 psi)	———
Tire size	Front	80/100-21 51P or 80/100-21 M/C 51P	———
	Rear	120/90-18 65P or 120/90-18 M/C 65P	———
Tire tread depth	Front	———	4.0 mm (0.16 in)
	Rear	———	4.0 mm (0.16 in)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION			LIMIT
Front fork stroke	288 (11.3)			———
Front fork spring free length	510.6 (20.1)			500 (19.7)
Front fork oil level (without spring)	122 (4.8)			———
Front fork oil type	SUZUKI FORK OIL SS-05 or an equivalent fork oil			———
Front fork oil capacity (each leg)	720 ml (24.3/25.4 US/Imp oz)			———
Front fork damping force adjuster	Rebound	15th clicks turn back		———
	Compression	12th clicks turn back		———
Rear shock absorber gas pressure	900 kPa (9.0 kgf/cm², 128 psi)			———
Rear shock absorber oil type	SUZUKI REAR SUSPENSION OIL SS-25 or an equivalent suspension oil			———
Rear shock absorber oil capacity	380 ml (12.8/13.4 US/Imp oz)			———
Rear shock absorber spring pre-set length	258.0 (10.2)			———
Rear shock absorber damping force adjuster	Rebound	13th clicks turn back		———
	Compression	*High speed	1¼ turns out	———
		*Low speed	10th clicks turn back	———

ITEM	STANDARD/SPECIFICATION	LIMIT
Rear wheel travel	295 (11.6)	———
Swingarm pivot shaft runout	———	0.3 (0.01)

ELECTRICAL

ITEM		SPECIFICATION		NOTE
Spark plug		Type	DENSO: U24ESR-N NGK: CR8E	
		Gap	0.7 – 0.8 mm (0.028 – 0.031 mm)	
Spark performance		Over 8 mm (0.3 in) at 1 atm.		
Ignition coil resistance		Primary	0.1 – 1.0 Ω	Terminal – Ground
		Secondary	12 – 20 kΩ	Plug cap – Terminal
Ignition coil primary peak voltage		More than 150 V		⊕ : B/W, ⊖ : B/Y
Generator coil resistance		Charging	0.50 – 1.25 Ω	Y – Y
		Signal coil	0.05 – 0.20 Ω	B – W
		Pick-up coil	390 – 600 Ω	G – Bl
Pick-up coil peak voltage		More than 5.0 V		⊕ : Bl, ⊖ : G
Signal coil peak voltage		More than 1.4 V		⊕ : B, ⊖ : W
Generator no-load voltage (when engine is cold)		More than 75 V (AC) at 5 000 r/min.		Y – Y
Regulated voltage		13.5 – 15.0 V at 5 000 r/min.		
Generator Max. output		200 W at 5 000 r/min.		
Starter relay resistance		3 – 5 Ω		
Battery	Type designation	YT7B-BS		
	Capacity	12 V 21.6 kC (6 Ah)/10 HR		

WATTAGE

Unit: W

ITEM		SPECIFICATION
Headlight	HI	60
	LO	55
Brake light/Taillight		21/5
Turn signal light		21
Speedometer light		LED
Neutral indicator light		2
High beam indicator light		2
Turn signal indicator light		2

FUEL + OIL

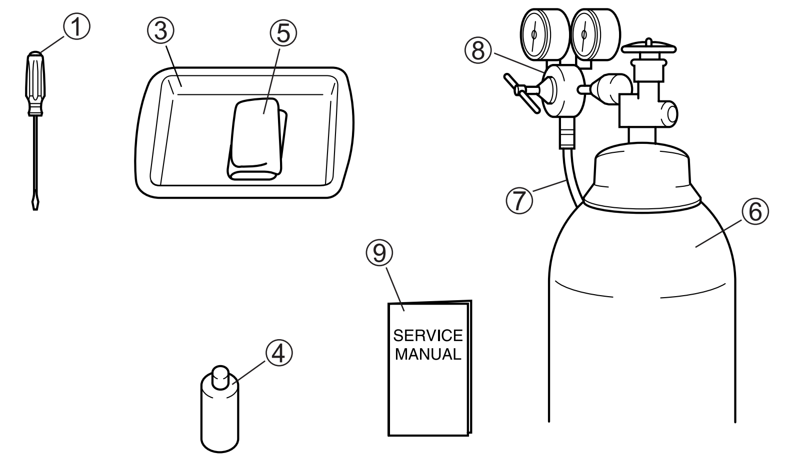
ITEM		SPECIFICATION		NOTE
Fuel type		Gasoline used should be graded 95 octane or higher. An unleaded gasoline is recommended.		
Fuel tank including	reserve	10.0 L (2.6/2.2 US/Imp gal)		
	reserve	2.3 L (0.6/0.5 US/Imp gal)		
Engine oil type		SAE 10W/40, API SF or SG		
Engine oil capacity		Change	1 700 ml (1.8/1.5 US/Imp qt)	
		Filter change	1 800 ml (1.9/1.6 US/Imp qt)	
		Overhaul	1 900 ml (2.0/1.7 US/Imp qt)	

REAR SHOCK ABSORBER

OIL REPLACEMENT PROCEDURE

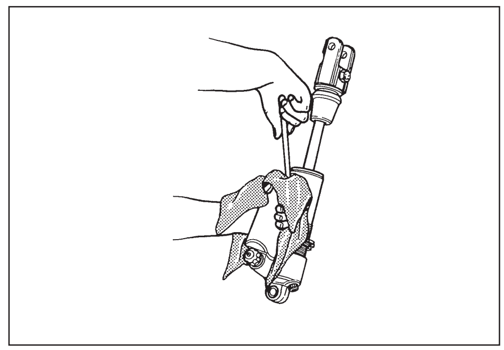
TOOLS AND EQUIPMENT

• The following tools and equipment are required to perform oil replacement.



① Screwdriver or small punch
② Vise*
③ Drain pan
④ Specified shock oil (SS-25)
⑤ Rags
⑥ Nitrogen tank
⑦ Filler hose and nozzle
⑧ Regulator assembly
⑨ Service manual
* Not shown in the illustration

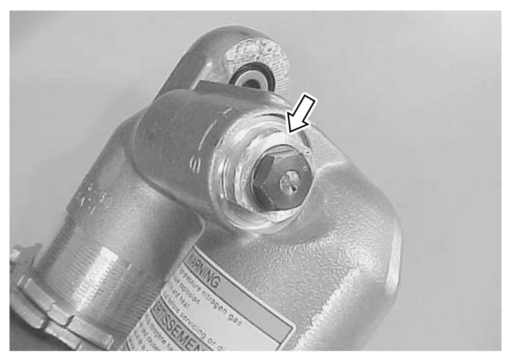
OIL REPLACEMENT



- Remove the rear shock absorber unit from the frame (☞ 6-33), and then clean and dry it.
- Remove the spring from the rear shock absorber unit. (☞ 6-34)

NOTE:

* *Inspect the rear shock absorber unit for oil leakage.*
* *Be sure to fully turn the rebound damping force adjusting screw counterclockwise, so that the rear suspension oil can be poured out easily.*



- Remove the valve cap, and then press the valve with a screwdriver to bleed out nitrogen gas.

⚠ WARNING

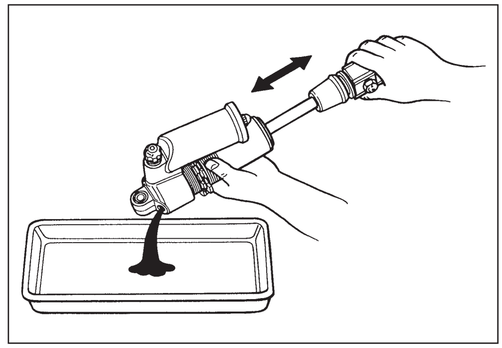
* **Releasing high pressure gas from the rear shock absorber unit can be hazardous. Never perform any servicing until the nitrogen gas pressure has been released from the rear shock absorber unit.**
* **When releasing the gas pressure, place a rag over the gas valve and use the tip of a screwdriver to press the valve. Do not use your finger to depress the gas valve, and be sure to direct the valve away from your face and body.**
* **Be sure to always wear eye protection when performing this procedure.**



- Remove the compression adjuster assembly from the rear shock absorber using special tool.

TOOL **09941-53640: R.C.U. compression adjuster wrench**

- Move the rod and drain the oil completely into a drain pan.
- Push the valve core again to equalize atmospheric pressure.



- Fill a drain pan with the specified rear suspension oil.
- Place the rear shock absorber into the drain pan so that the drain hole is submerged in the oil, and then fill the rear shock absorber with the oil by stroking the rod.



TOOL **99000-99001-S25:**
SUZUKI REAR SUSPENSION OIL SS-25

DATA **Oil capacity:**
Approximately 380 ml (12.8 US oz, 13.4 Imp oz)

- When fitting the orifice in the compression adjuster hole, face the conical side to the valve side.
- Tighten the compression adjuster assembly to the specified torque using the special tool.



CAUTION

Replace the remove O-rings with new ones.

Compression adjuster assembly:
30 N·m (3.0 kgf·m, 21.5 lb-ft)

TOOL **09941-53640: R.C.U. compression adjuster wrench**

- Fill the rear shock absorber unit with nitrogen gas.

DATA **Rear shock absorber gas pressure:**
900 kPa (9.0 kgf/cm^2, 128 psi)

- Tighten the gas valve cap.

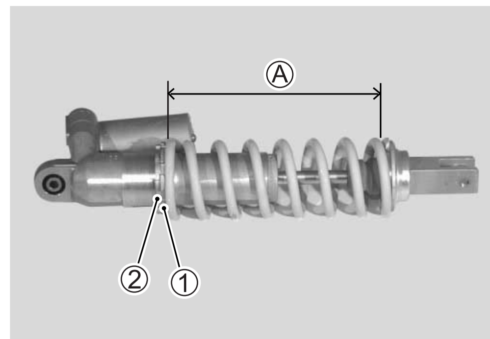
⚠ WARNING

*** Use of flammable gas for pressuring the rear shock absorber unit can be hazardous. Flammable gas such as gas welding oxygen can create a fire hazard.**
*** Use nitrogen gas. If nitrogen gas is not available, compressed air free from water can be substituted.**
*** Applying too much pressure to the rear shock absorber unit may rupture the rear shock absorber unit.**
*** Be sure to fill the rear shock absorber unit to the specified pressured.**

CAUTION

Riding the motorcycle with abnormal gas pressure can damage the rear shock absorber unit. Low gas pressure can result in oil leakage. Abnormal gas pressure cannot provide normal performance of the rear shock absorber. Be sure to fill the rear shock absorber unit to the specified pressure.

REASSEMBLY AND REMOUNTING



Reassemble and remount the rear shock absorber in the reverse order of removal and disassembly. Pay special attention to the following points:

- Install the spring, spring seat, and circlip.
- Turn the adjuster ① to obtain the spring length Ⓐ of 258.0 mm (10.16 in).
- Tighten the lock ring ② to the specified torque.

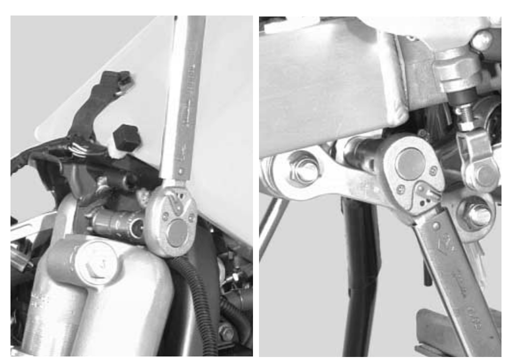
Rear shock absorber lock ring:
90 N·m (9.0 kgf·m, 65.0 lb-ft)

SPRING SETTING TABLE

Spring preset length		
Standard	Softest	Stiffest
258.0 mm (10.16 in)	259.5 mm (10.22 in)	247.5 mm (9.74 in)

CAUTION

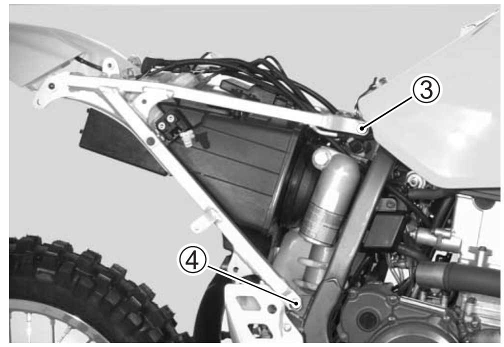
Do not set the spring less than 247.5 mm (9.74 in).



- Tighten the rear shock absorber upper and lower mounting nut to the specified torque.

Rear shock absorber upper and lower mounting nut:
55 N·m (5.5 kgf·m, 40.0 lb-ft)

- Apply THREAD LOCK SUPER "1303" to the seat rail lower mounting bolt ④.



1303 **99000-32030: THREAD LOCK SUPER "1303"**

- Tighten the seat rail upper mounting nut ③ and lower mounting bolts ④ to the specified torque.

Seat rail upper mounting nut:
35 N·m (3.5 kgf-m, 25.5 lb-ft)
Seat rail lower mounting bolt:
35 N·m (3.5 kgf-m, 25.5 lb-ft)

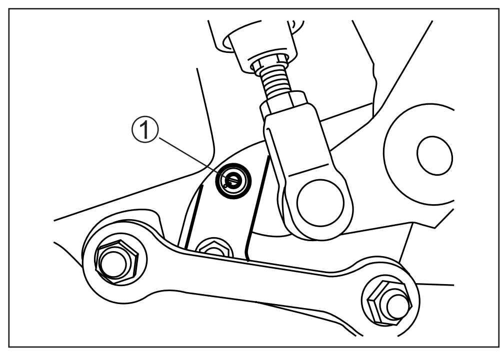
DAMPING FORCE ADJUSTMENT

After installing the rear suspension, adjust the rebound and compression damping force as follows.

NOTE:
Do not turn the adjust screws more than the given position or the adjuster may be damaged.

REBOUND DAMPING FORCE ADJUSTMENT

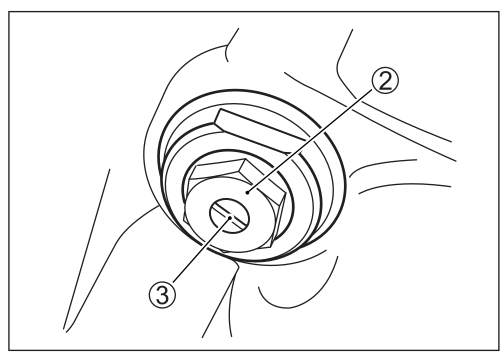
Fully turn the damping force adjuster ① clockwise. It is at stiffest position and turn it out to standard position.



DATA **Standard setting position: 13 clicks out**

COMPRESSION DAMPING FORCE ADJUSTMENT

Compression damping force could be adjusted in two stage by turning the two adjusters.



High speed damping force

Fully turn the high speed damping force adjuster ② clockwise. It is at stiffest position and turn it out to standard position.

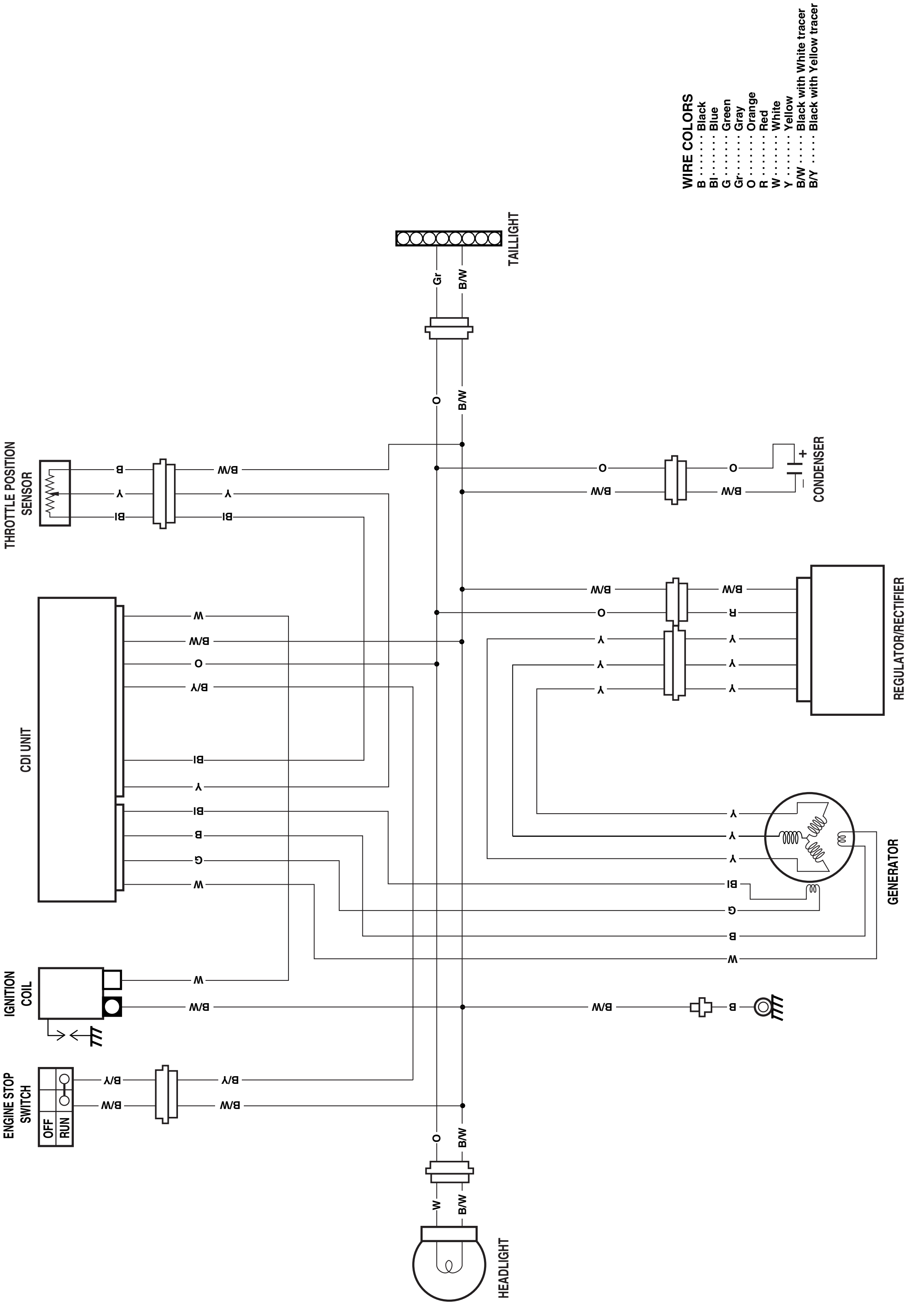
Low speed damping force

Fully turn the low speed damping force adjuster ③ clockwise. It is at stiffest position and turn it out to standard position.

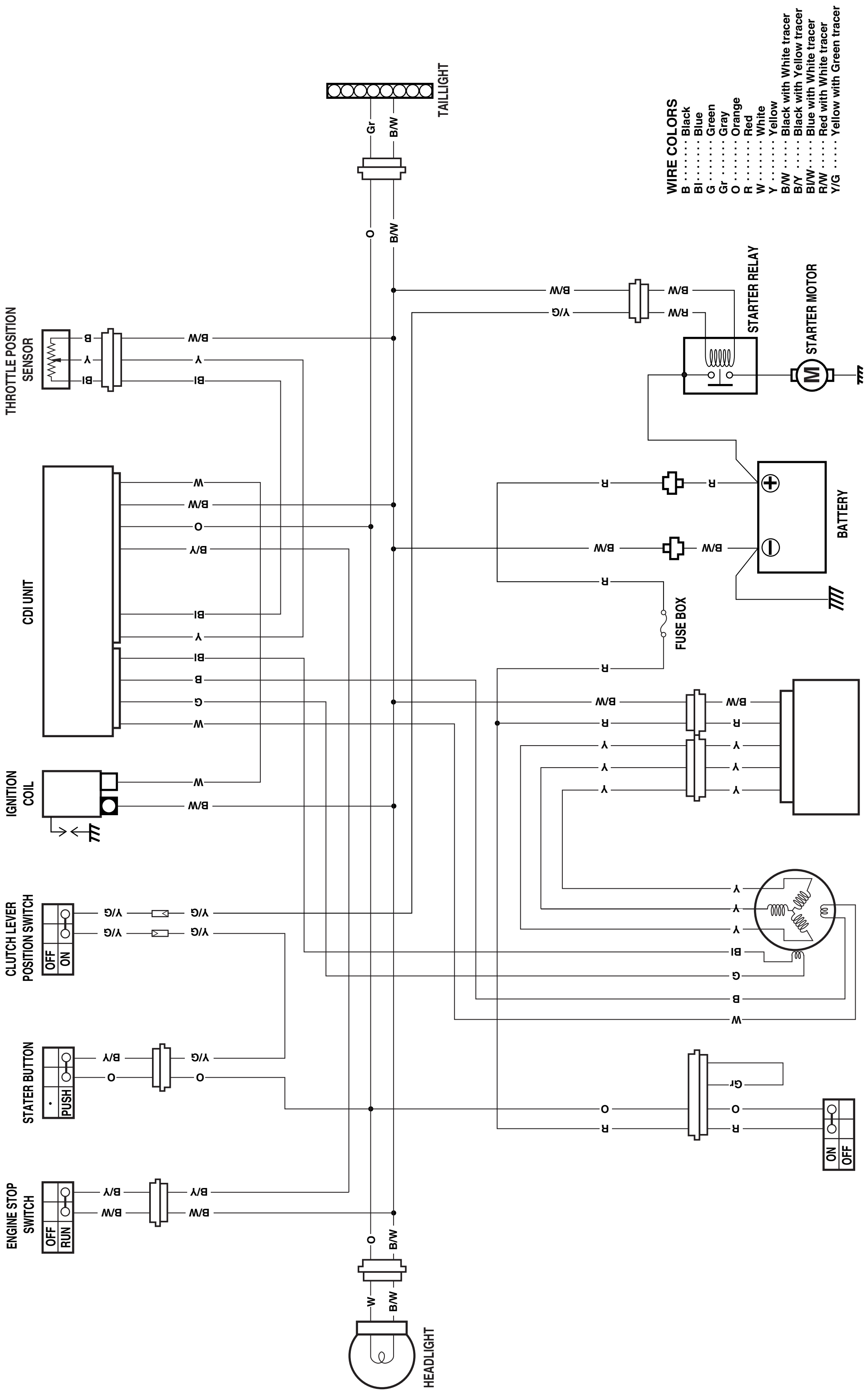
DATA **Standard setting position**
High speed damping: 1¼ turn out
Low speed damping: 10 clicks out

WIRING DIAGRAM

DR-Z400

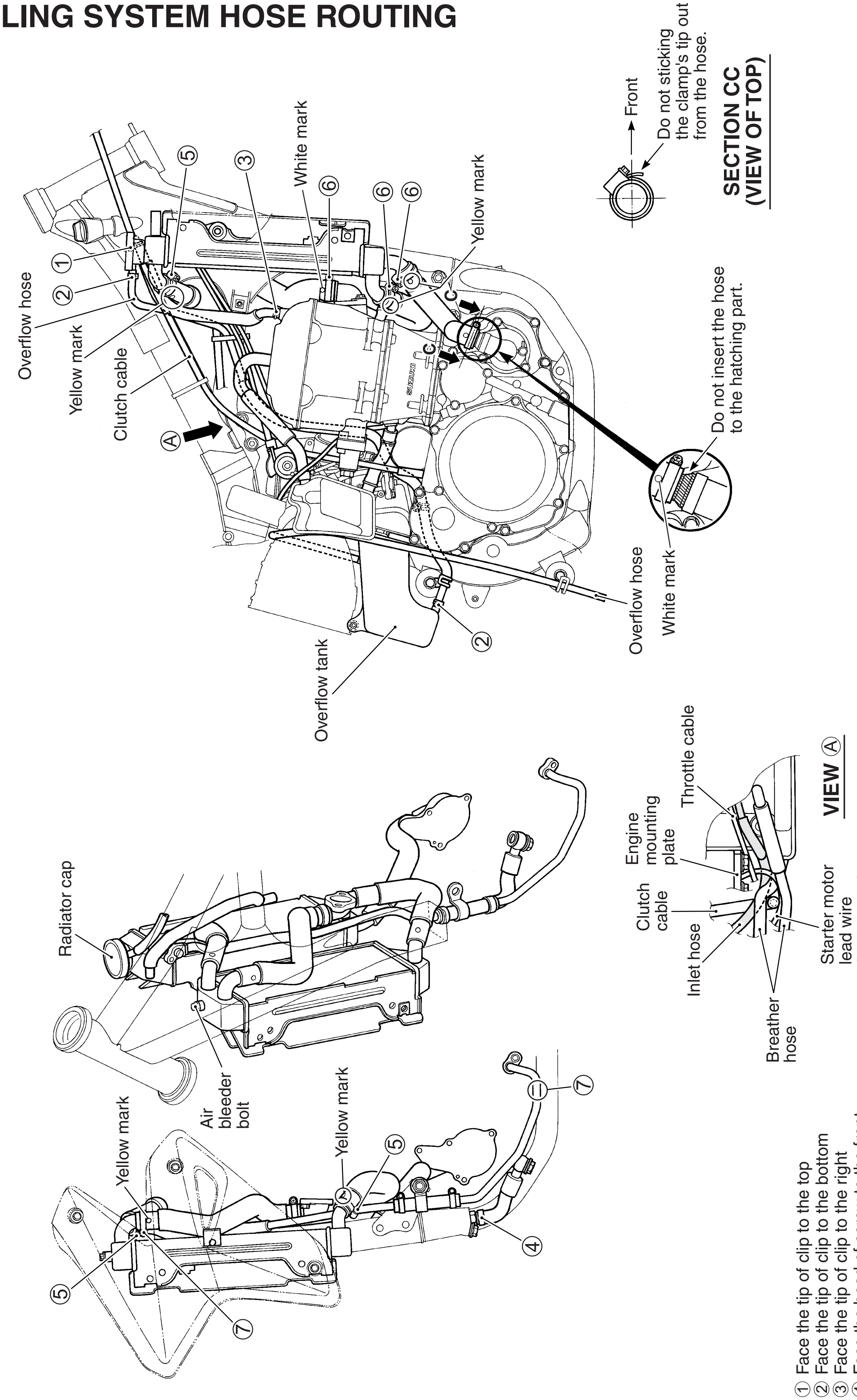


DR-Z400E



TAILLIGHT
THROTTLE POSITION SENSOR
CDI UNIT
IGNITION COIL
CLUTCH LEVER POSITION SWITCH
OFF
ON
STATER BUTTON
PUSH
ENGINE STOP SWITCH
OFF
RUN
HEADLIGHT
STARTER RELAY
STARTER MOTOR
M
BATTERY
FUSE BOX
REGULATOR/RECTIFIER
GENERATOR
IGNITION SWITCH
ON
OFF
WIRE COLORS
B . . . . Black
Bl . . . . Blue
G . . . . Green
Gr . . . . Gray
O . . . . Orange
R . . . . Red
W . . . . White
Y . . . . Yellow
B/W . . . . Black with White tracer
B/Y . . . . Black with Yellow tracer
Bl/W . . . . Blue with White tracer
R/W . . . . Red with White tracer
Y/G . . . . Yellow with Green tracer

COOLING SYSTEM HOSE ROUTING



① Face the tip of clip to the top
② Face the tip of clip to the bottom
③ Face the tip of clip to the right
④ Face the head of screw to the front
⑤ Face the head of screw to the back side
⑥ Face the head of screw to the right side
⑦ Face the head of screw to the left side

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